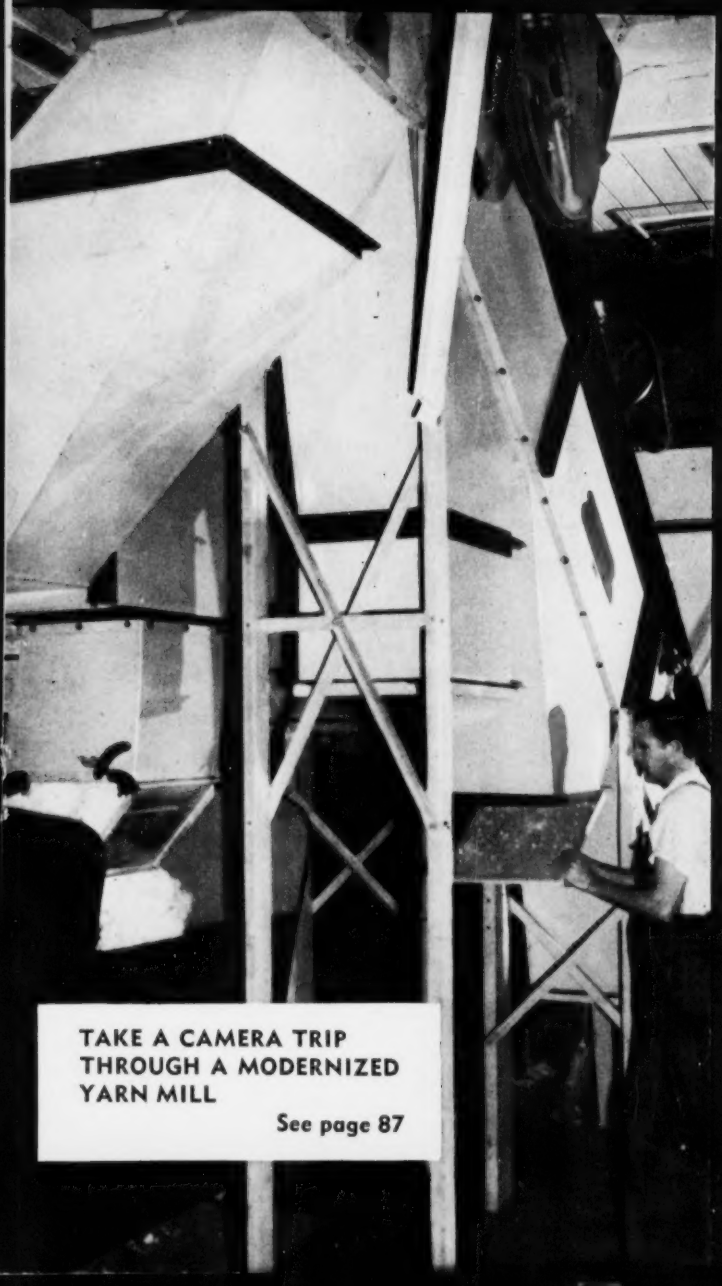
TEXTILE WORLD



TAKE A CAMERA TRIP THROUGH A MODERNIZED YARN MILL

See page 87

ARTICLES IN THIS ISSUE DISCUSS:

Will You Improve Your Plant?
Small Mill Gets Loom Control
Electrically Heated Cylinders
Movie Makes Point
Duffers Swing for Golf
No Better Roving Plenty
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Twister-Ring Gages
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How Good Are Your Loom Fixers?
How Spalding Knits Ahead
Carding and Combing
Decoration of Coated Fabrics
Air-System Maintenance
What's Being Done About Synthetics
Russian Textile Mission
Brown Line Is Outstanding

★

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INDEX to Advertisers
Keyed

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Textile Engineering Division

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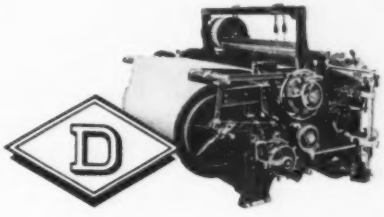

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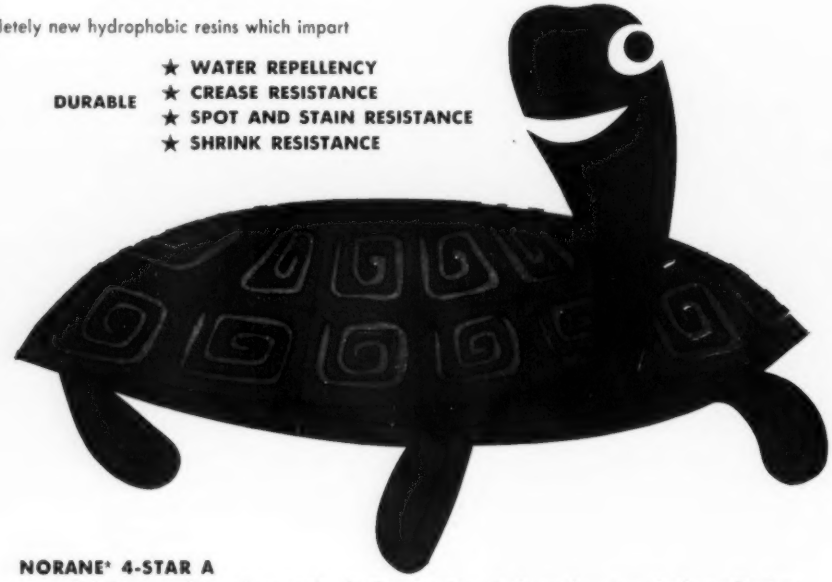

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THE Long-Range VIEW

Will You Improve 2% a Year?

Barring unpredictable setbacks, the textile industry will grow 2% a year for the next 10 years, a total of 20 to 25%. By 1961, fiber consumption in the United States will reach more than 8-billion pounds a year, compared to less than 7-billion in 1951. Important gains will be made in fabrics for clothing, home furnishings, and automobiles.

These indications are contained in a report on the growth probabilities for the next 10 years prepared by the McGraw-Hill Economics Dept., headed by Dr. Dexter Keezer. The figures do not represent maximum potential. Dr. Keezer points out that the increase could very easily be 3 to 5% a year, if workers, management, and the government worked at the growth of the general economy with a will and with wisdom. Realistically he does not expect that; and he revises the figure downward to the 2% average for the 1929-1950 period.

(It is interesting to note that General Motors expects a 2% productivity increase strongly enough to write in a 2% annual wage increase based on increased productivity alone in its current five-year union contract.)

Growth expectations are based on three factors:

1. Population will rise to 175-million, an increase of 14%
2. The work week will average 40 hr. instead of the 1951 average of 44 hr. or the 1931 average of 47 hr.
3. Productivity per manhour will rise as better machines are built, better work methods are discovered, and better production incentives are used

If you look closely at these three factors, you will see that only one of them is within the control of the men who run a mill. That one is the productivity factor. Mill men can do nothing about the nation's population increase, and they had little or nothing to do with decreasing the work week from 47 hr. to 44 hr. from 1931 to 1951.

As pointed out by Dr. Keezer, productivity will rise in direct proportion to:

1. How much money is invested to install new and better equipment
2. How vigorously and skillfully the equipment is used

The reverse side of the picture obviously is that productivity will decrease in proportion to the degree equipment is allowed to become worn out or obsolete and to the degree it is used inefficiently.

With an increase of 20 to 25% in textile consumption almost a certainty in the next ten years, mill men should ask themselves seriously: "Will I get a share of that increase?" It goes without saying that the demand for textiles will be met, either by existing mills alone or with the help of additional mills. The only question is whether your productivity will increase with the market potential.

Faced with day-to-day problems of manufacturing and marketing, mill men can easily lose sight of where they are heading. An excellent idea would be to measure your productivity increase every year. If you are doing only an average job, you should produce 2% more goods per manhour of work than you did the year before.

It should be noted that this 2% does not mean 2% more total pounds than were produced the preceding year. Nor does it have anything to do with market prices or profit. It means simply that a manhour worked should produce 2% more textiles than a manhour of labor produced the preceding year.

Of course, every year will not bring a 2% improvement in a particular mill. Some years may show a decrease; others may net an improvement of 5% or more. But the point is that since 1929 the average yearly improvement for all industry in the United States has been 2%, and for the next 10 years it should be 2% or better.

The 2%-improvement factor can be used not only by top management, but also by superintendents and departmental overseers. A mill that is not improving productivity at that rate is dragging its feet. If the drag lasts long enough, the mill will not be able to meet competition. If a card-room or a weave-room overseer, for example, is not showing a 2% increase in output per manhour worked in his department, he is not keeping up with the progress that is only average for all of American industry.

If productivity is not increasing satisfactorily, close study should be given to the factors that determine productivity. Perhaps new machinery or auxiliary equipment must be bought. Work methods may be antiquated. Labor relations may be bogging down production. Inefficient or uncooperative personnel—perhaps in top management as well as on the production line—may be a bottleneck. And, perhaps, your own leadership may not be as inspiring as it could be.

J. M. Thomas

(*Advertisement*)

How Cotton Mills May Increase Production— Lower Costs Per Loom Production

When asked how they were increasing production and lowering costs on their belt driven looms, many mill superintendents reported, "through the use of Tannate flat leather belting." They have found that Tannate is much stronger, that it delivers maximum but uniform power to looms and other machines. Because of its high overload capacity, Tannate operates on a continuous production run. It requires less maintenance, less adjustment. These advantages are the result of the special Rhoads tanning process that strengthens and cultivates the natural characteristics of leather. Special emphasis is also given to subsequent treatments. The end result is a belt that transmits power at 97 to 99% of efficiency over a wide range of tensions. All this adds up to more yarn, more cloth at lower cost.

L. H. Schwoebel-Rhoad's Rep.
"Sees great future for Bicut"

L. H. Schwoebel has represented J. E. Rhoads & Sons for the past 30 years. Like all Rhoads direct factory representatives, Lou Schwoebel is a specialist in leather. In addition, his experience in the textile field has enabled him to assist mill men in boosting efficiency and lowering costs through the proper selection and application of textile leathers.

Southern Textile Exposition Oct. 6-11

J. E. Rhoads & Sons will occupy Booth #456 during the 17th Southern Textile Exposition, Textile Hall, Greenville, S. C., October 6 to 11. Rhoads' sales engineers will be in attendance to answer all inquiries. Rhoads' will also display a variety of fine textile leathers —Booth #456.

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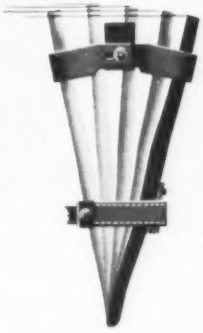

Now . . . you can actually see and feel the finer qualities of the new satin finished Bicut Check Strap! Unlike the conventional hair-on strap, Rhoads Bicut Check Strap has no hair to wear off and get into the cloth being woven. Its smoother surface, naturally, offers a better friction surface for more efficient checking. And, because many more leather fibres are compressed into the area designated by thickness specifications, Bicut is stronger—lasts 25% longer in loom hours! You may see, feel and test the new Bicut Check Strap by contacting your Rhoads sales engineer. Bicut Straps are available in a variety of weights to suit the width of your looms and the fabric being woven.

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250

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producing at the average rate of 40 pounds per hour
have a total capacity of 54,080 pounds per hour
which is 76.6% *of the total COMBED YARN produced in the country!*

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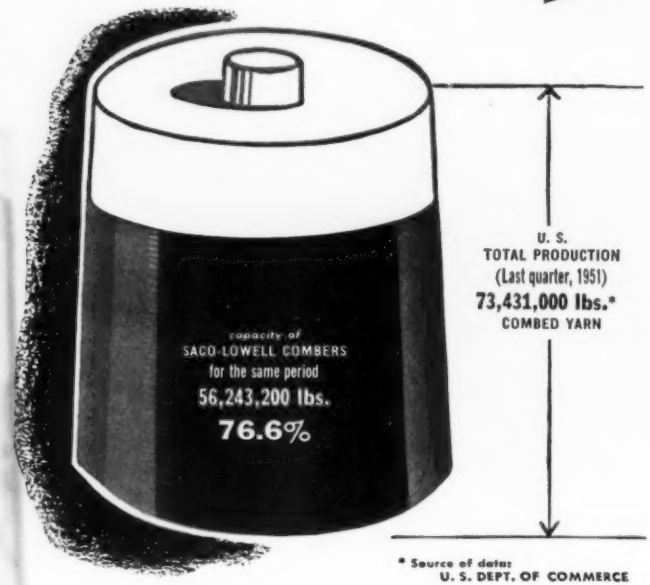

* Source of data:
U. S. DEPT. OF COMMERCE

U. S. production 73,431,000 pounds; if produced on a 2-shift basis, the hourly production is 70,607 pounds. SACO-LOWELL Combers' hourly capacity of 54,080 is 76.6%

For mills operating obsolete combing processes, our engineers will be glad to prepare an analysis containing a forecast of the savings, improvements in quality, and other advantages attained with the use of modern Saco-Lowell high-duty combing equipment.

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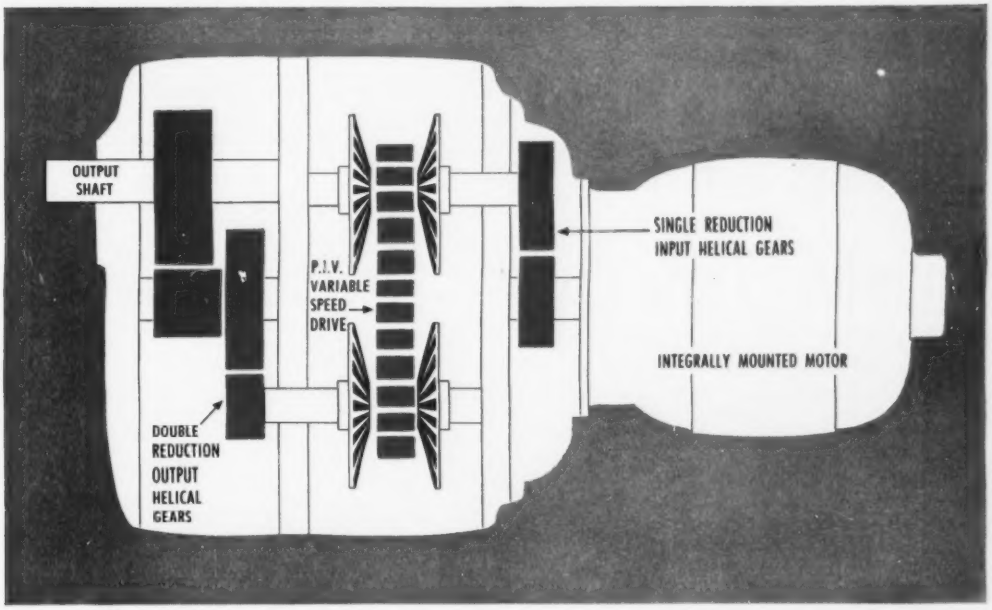

-- motorized variable speed drive PLUS speed reducer

Whether your variable speed problem is simple or complex, Link-Belt's P.I.V. can increase the flexibility and efficiency of your machines. For this variable speed drive is not dependent on friction—you get exact speed selection in *positive*, infinitely variable settings.

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P.I.V. VARIABLE SPEED DRIVE

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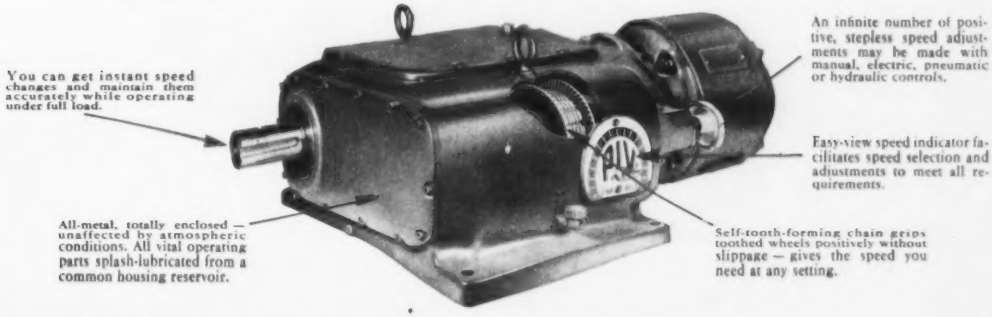
*Positive, infinitely variable


You can get instant speed changes and maintain them accurately while operating under full load.
An infinite number of positive, stepless speed adjustments may be made with manual, electric, pneumatic or hydraulic controls.
Easy-view speed indicator facilitates speed selection and adjustments to meet all requirements.
All-metal, totally enclosed — unaffected by atmospheric conditions. All vital operating parts splash-lubricated from a common housing reservoir.
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Reduce Yarn Handling Time 30%

TAPERED HEADLESS PACKAGE TAKE-UP of the new Unirail Uptwister cuts operator's yarn-handling time as much as 30%. Time-saving features include: automatic tailing device . . . hinged arbor which speeds up donning and doffing, without handling the yarn . . . self-threading guide . . . quick-threading centering eye . . . anti-drum-wrap device . . . unique stop-motion. Bulletin 501 tells you the whole story.

...with the new Headless Package Unirail® Uptwister

Never before could you produce such good yarn at such low costs.

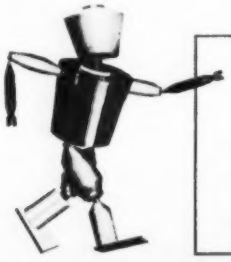
Here's why. With this new Headless Package Unirail Uptwister, you minimize yarn handling time . . . twist with less tension . . . cut donning and doffing time as much as 30% . . . doff without touching the yarn . . . avoid roll and shaft wraps . . . eliminate extra threading . . . run at high speeds — (thanks to the revolutionary new Uniflex Spindle) . . . cut power costs . . . get rid of free oil and yarn spoilage . . . reduce oiling and cleaning cycles to new all-time lows.

What's more, pre-erection, factory run-in and sectional shipment of the Headless Package Unirail Uptwister simplify installation . . . get your new uptwister on the job quickly with perfect assurance of top performance from the start.

Can any uptwister be that good? — Read the new fact-packed Bulletin 501 and see for yourself. Or better yet, see your nearest Universal Winding Company sales representative for full details.

NEW BULLETIN 501 shows you in detail how the new Unirail Uptwister cuts your costs, speeds up production and improves yarn quality. Write today.

23.2.3



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Timesaver for Mill Drives

To help textile mills cut down-time on drives caused by need for V-Belt replacements, the G.T.M. — Goodyear Technical Man — developed Goodyear's Textile Special V-Belt.

Mills everywhere report its success—because this belt handles high starting torques, heavy shock loads, sheave misalignment and uneven load distribution, thanks to the G.T.M.'s ability to design for the job. Ask the G.T.M. about Textile Special V-Belts, available in all popular mill sizes. Or write Goodyear, Mechanical Goods Division, Akron 16, Ohio.

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C Gum cushion in compression section

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GOODYEAR

THE GREATEST NAME IN RUBBER

12 years with minimum maintenance and no replacement for these *Stainless Steel* boarding forms

...and few rejects caused by snagging

Final boarding takes place on steam-filled Stainless Steel forms. Equipment was made by Paramount Textile Machinery Co., Chicago, Ill.

● The smooth, dense, durable surface of Stainless Steel makes it the ideal material for textile mill applications where long life, freedom from maintenance and protection of the product must go hand in hand.

These qualities of Stainless Steel are demonstrated dramatically at Acme Hosiery Dye Works, Pulaski, Va., where nylon hosiery takes its size and shape on Stainless boarding forms.

Ten times an hour around the clock Stainless pre-boarding forms are subjected to temperature changes from room level to 252°F. in the steam cabinet. But the 484 Stainless pre-boarding forms at Acme have been in service for 12 years with minimum maintenance and no replacement. And, equally important, few rejects have been caused by snagging on rough metal. The surface of metal forms used previously would roughen with wear, requiring frequent rubbing with abrasives and polishes. But Stainless Steel is smooth to start with and *stays smooth.*

In final boarding, the forms themselves hold the steam. These forms, too, have been in service for 12 years and have kept their smoothness and undistorted shape. In addition, they maintain an even heat over their surface and reduce fluctuations during the operating cycle.

Two of the eight pre-boarding machines at Acme Hosiery Dye Works are shown in this picture. Each is equipped with 24 Stainless Steel forms.

Wherever you need a material that is kind to the fabric, that resists corrosion and abrasion, that keeps maintenance and replacement costs at a minimum, rely on Stainless Steel. And for unmatched performance, insist that your equipment fabricator use U·S·S Stainless Steel.

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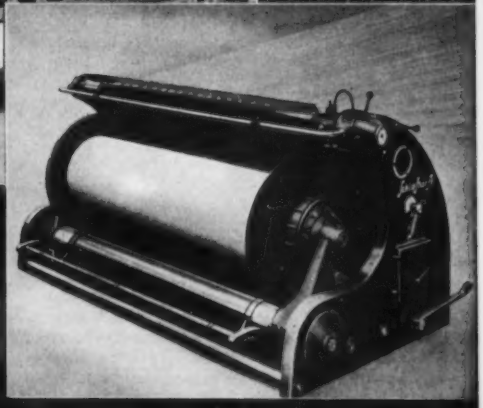
UNITED STATES STEEL

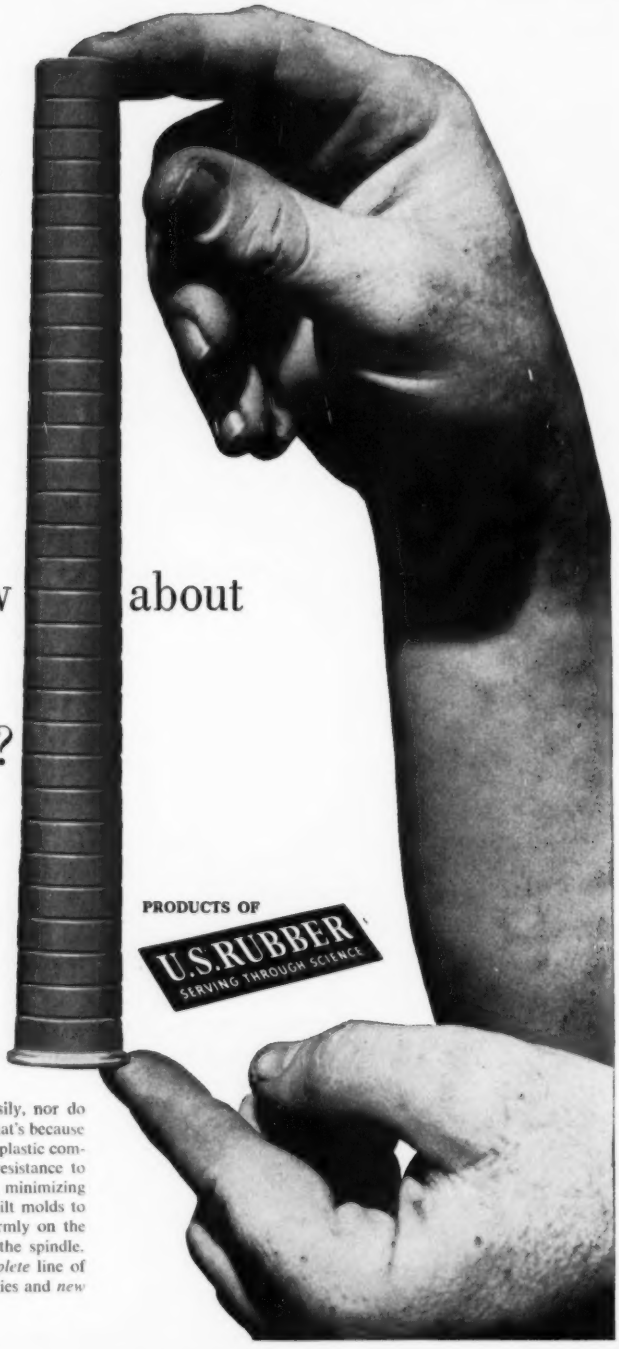
MACHINERY FOR WINDING AND WARPING

Schlafhorst



UNIONMATEX

MAKERS: - W. SCHLAFHORST & CO., M. GLADBACH, GERMANY



What's new about U. S. Rubber's warp tubes?

First, they do not crush easily, nor do they chip, splinter or roughen around the ends. That's because they are made of Uscolite, the sensational rubber-plastic compound. Uscolite warp tubes provide maximum resistance to abuse in a thin-walled tube. They hold yarn well, minimizing sluffing. Because they are molded in precision-built molds to close tolerances, Uscolite warp tubes seat uniformly on the spindles. There is never any working down on the spindle.

United States Rubber Company makes a *complete* line of textile mill specialties, incorporating *new* economies and *new* highs in product quality. Write to address below.

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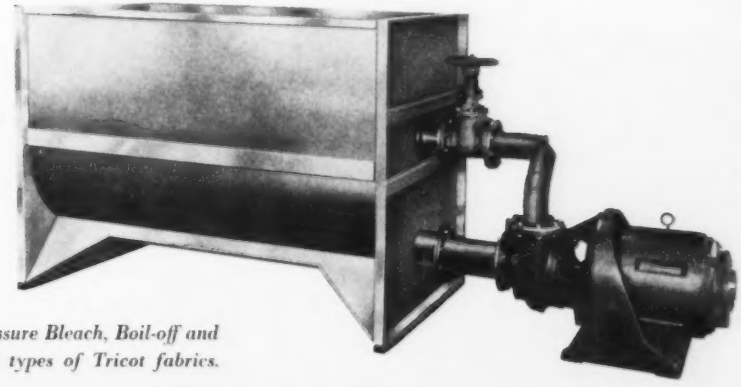
TRICOT was a nervous filly until expert hands took the reins. Now she thunders down the homestretch, a winner by lengths — lengths of perfectly dyed material, thanks to this AMAZING NEW MACHINE.



Burlington's new Pressure Bleach, Boil-off and Dye Machine for all types of Tricot fabrics.

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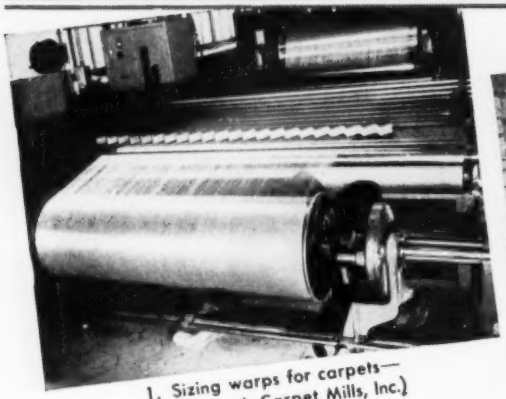
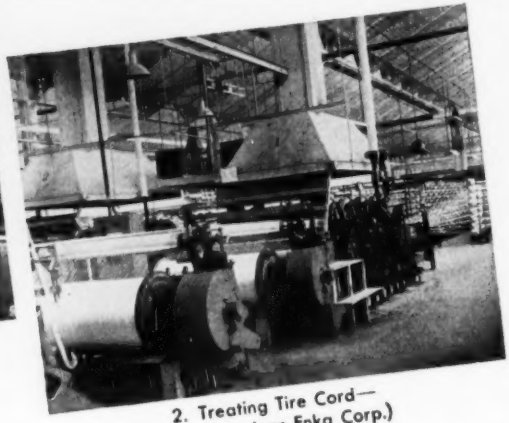


1. Sizing warps for carpets—
(Mohawk Carpet Mills, Inc.)



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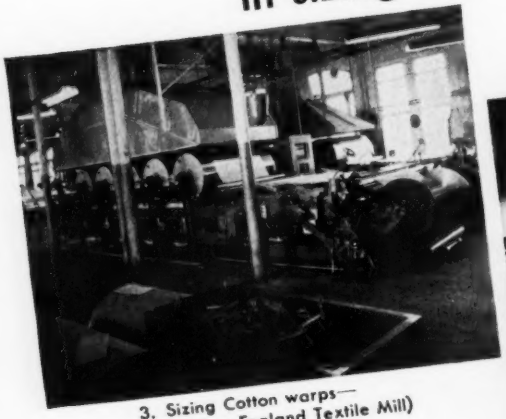
Variety in applications with uniformity in sizing and processing efficiency.



3. Sizing Cotton warps—
(A New England Textile Mill)

4. Sizing Synthetic warps—
(Robbins Mills, Red Springs Plant)

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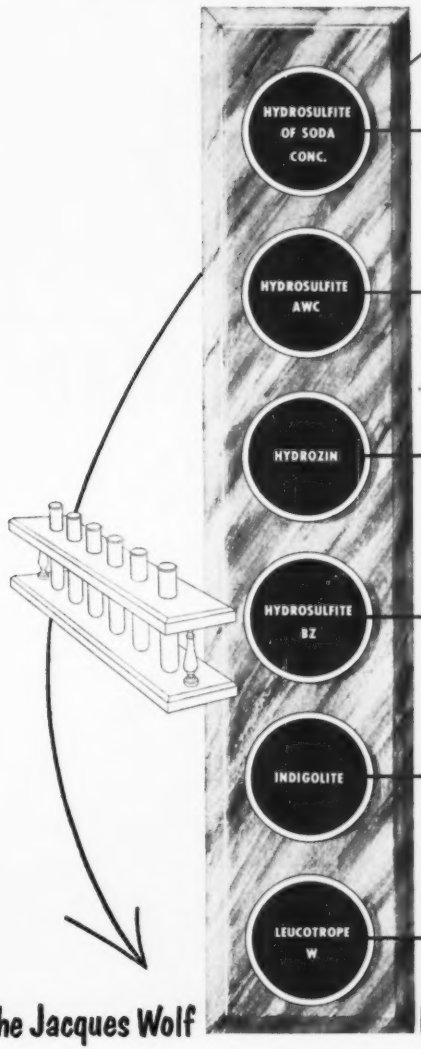

REDUCING AGENT FOR VAT DYEING:

A pure, full strength Sodium Hydrosulfite ($Na_2S_2O_4$). A reducing agent for dyeing vat colors on cotton, rayon and other fabrics. Also HYDROSULFITE OF SODA Q.D. for immediate solubility in continuous vat dyeing machines.

APPLICATION & DISCHARGE PRINTING:

The highest strength of Sodium Formaldehyde Sulphoxylate. ($NaHSO_2.CH_2O.2H_2O$). For application printing of vat colors and for discharge printing on all textiles. Also used for stripping.

DISCHARGE PRINTING OF ACETATE:

A clear-dissolving, soluble Zinc Formaldehyde Sulphoxylate. ($Zn(HSO_2.CH_2O)_2$). For discharge printing on acetate dyed grounds. Also for stripping certain colors on wool, acetate and nylon.

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This is a Basic Zinc Formaldehyde Sulphoxylate ($Zn(OH)HSO_2H.CHO$) used for stripping wool stock, Shoddy and rags.

DISCHARGE FOR INDIGO:

Mixture of Leucotrope W and Hydrosulfite AWC in the proper proportions to give a white discharge on Indigo-dyed grounds.

DISCHARGE FOR INDIGO:

Sulphonated quaternary base. For pure white discharges on Indigo-dyed grounds when mixed with Hydrosulfite AWC.

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There's less work for the maintenance crew with Hartford Spindles. Pre-packed, grease-retaining bearings . . . needing no attention for an estimated five years . . . eliminate the oiler's job — keep your yarn and floors cleaner. You'll have no worries over dry spindles. Using Hartford Spindles you operate at your maximum r.p.m., with no friction-heat, saving motive power, and with assurance of more even twist.

NO OILING!

PRE-PACKED . . . BEARINGS

Also, shutdown time is drastically reduced — because you don't need to stop the frame to check and adjust for plumb. An exclusive adjustment feature — the knurled plug at the all-steel base — controls plumbing through double-eccentric aligning sleeves. No bolster or blade to wear.

See for yourself this improved spindle (time-tested on 90,000 installations by machine manufacturers) simply by writing our nearest office to show you a sample. Just address your letter to . . .

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attractive combination for
attractive colors at
attractive costs

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Bright, clear, wash-fast colors on direct-dyed rayons and cottons . . . that's the low-cost result you achieve by using NATIONAL BORDEAUX BGL plus NACCUFIX after treatment. It's an ideal combination for today's markets.

Or, if you contemplate combining direct dyes with a wrinkle-proofing resin treatment, BORDEAUX BGL will give excellent results. Here, too, using NACCUFIX to replace the usual accelerator protects against a loss of light-fastness.

Technical Bulletin #365 gives complete fastness properties and dyeings of NATIONAL NIAGARA FAST COPPER BORDEAUX BGL. Our nearest office will send you a copy and will welcome the opportunity to furnish application data on this new National Dye and on NACCUFIX . . . alone or in combination.

About NACCUFIX

After-treatment in a 1% to 5% NACCUFIX bath markedly increases the wash, light and perspiration fastness of direct-dyed cottons and rayons. Thus after-treated, colors do not migrate, are faster to laundering, dry cleaning and hot wet-pressing.

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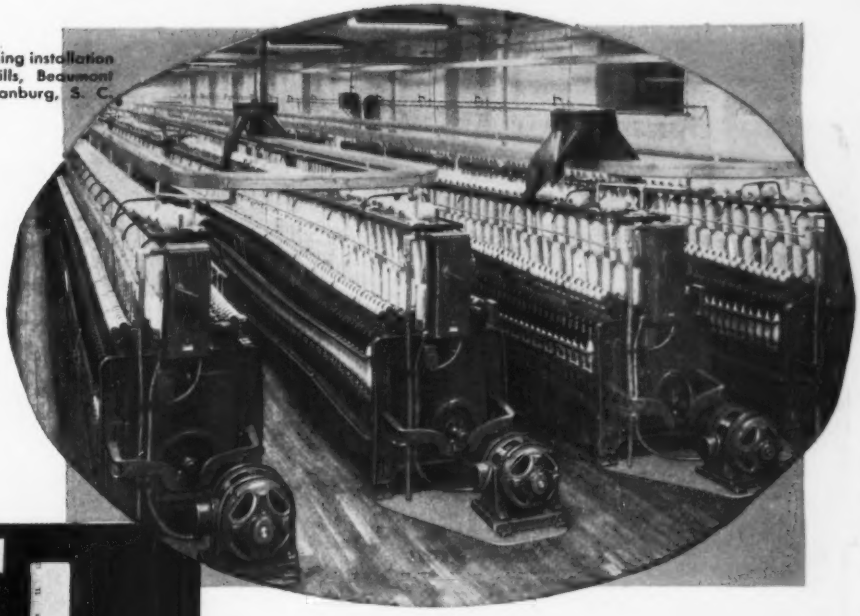
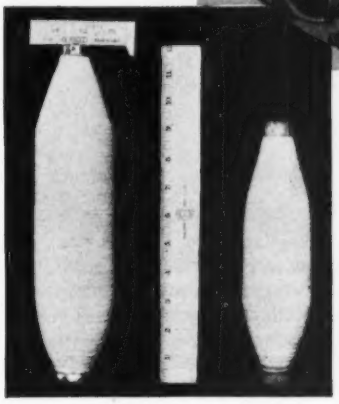
WHITIN keeps pace with the demand for LARGE PACKAGE SPINNING



Model F3 Spinning installation at Spartan Mills, Beaumont Division, Spartanburg, S. C.



Unretouched photo of a large package spun on the "F3" and conventional size bobbin. The 11" package contains 7.50's and the net weight of yarn exceeds 16 oz.

Whitin's new "F3" Spinning Frame successfully meets all the demands of the Industry for large package spinning on coarse counts. These frames are designed for 11" traverse with filling wind, the package containing 16 oz. or more net weight of yarn, depending on the count.

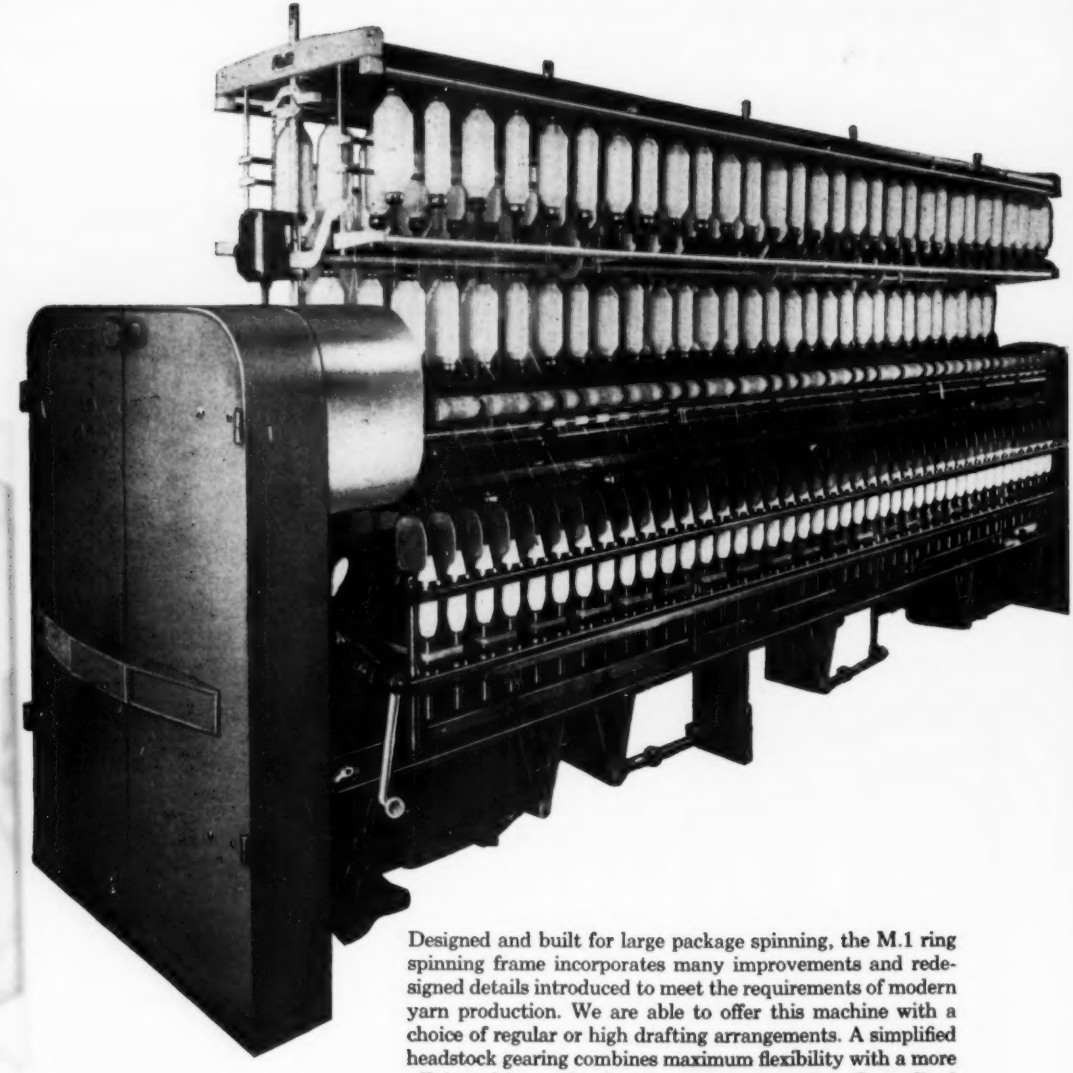
An ever-increasing number of mills have discovered that substantial economies can be effected by the use of large package spinning, particularly in running coarse numbers. Savings are definitely assured because large packages increase the length of the doffing cycle, reduce package handling in winding, — result in lower labor and winding costs.

Cost-conscious mills are finding a number of other interesting features on the Model F3 including (1) it requires no plant modifications to replace old frames. (2) it is a conventional type frame; your employees are already acquainted with its operation and understand its maintenance. Last, but not least, (3) it is comparable in initial cost to standard spinning frames.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.



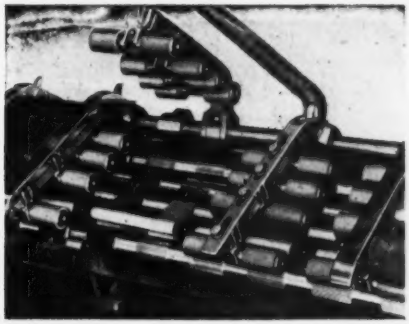
Designed and built for large package spinning, the M.1 ring spinning frame incorporates many improvements and redesigned details introduced to meet the requirements of modern yarn production. We are able to offer this machine with a choice of regular or high drafting arrangements. A simplified headstock gearing combines maximum flexibility with a more efficient drive and reduces power consumption. Centralized headstock lubrication allows the frame to be oiled while running. A combination building motion may be used which enables three types of build to be obtained on the same frame by means of simple adjustments. The Pneumafil system of broken end collection is optional. May we send you full data.

M1

LARGE PACKAGE RING SPINNING FRAME

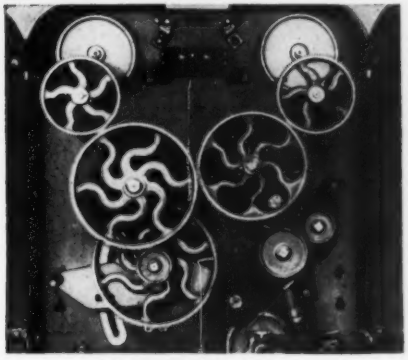
PLATT BROS.

SALES LTD. OLDHAM, ENGLAND



NEW! SPRING ARM ROLLER WEIGHTING

Weight hooks and stirrups are gone. New spring arm adjusts to a wider range of staple lengths without altering the nip pressure. Resilience and pressure remain correct even after regrinding cots. Instant pressure release saves cots over week-ends. Central roller support arm raises for quick cleaning of ALL rollers. Few oilings are needed and none near the cots. (Pat. Pend.)

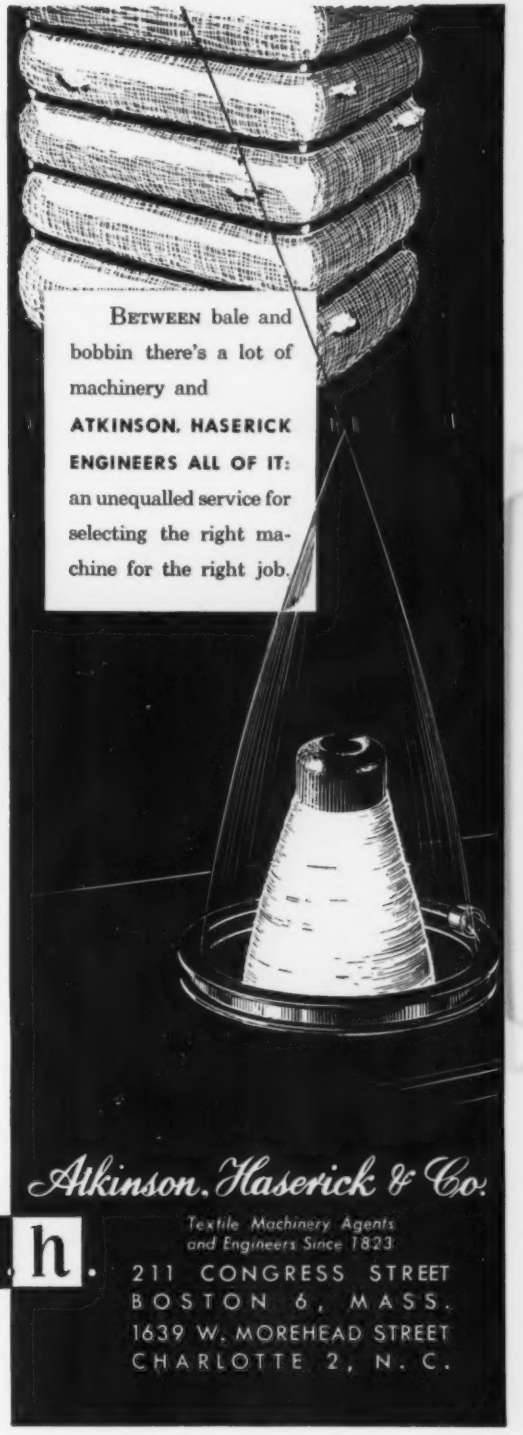


SIMPLIFIED HEADSTOCK

Headstock gearing has a central lubrication system allowing frame to be oiled while running and avoids excess or under lubrication. Simplified gearing combines flexibility of turns per inch while using fewer gears. Greater efficiency is attained and less power consumed.

HIGH SPEED SPINDLE

Cut-away, shows the heavy load, roller bearing spindle for large packages with long lifts. It is of the oil cushion ring brake insert design. They need routine maintenance at only 2,500 hour intervals. Power savings run up to 15% on this type of spindle.


BETWEEN bale and bobbin there's a lot of machinery and ATKINSON, HASERICK ENGINEERS ALL OF IT: an unequalled service for selecting the right machine for the right job.
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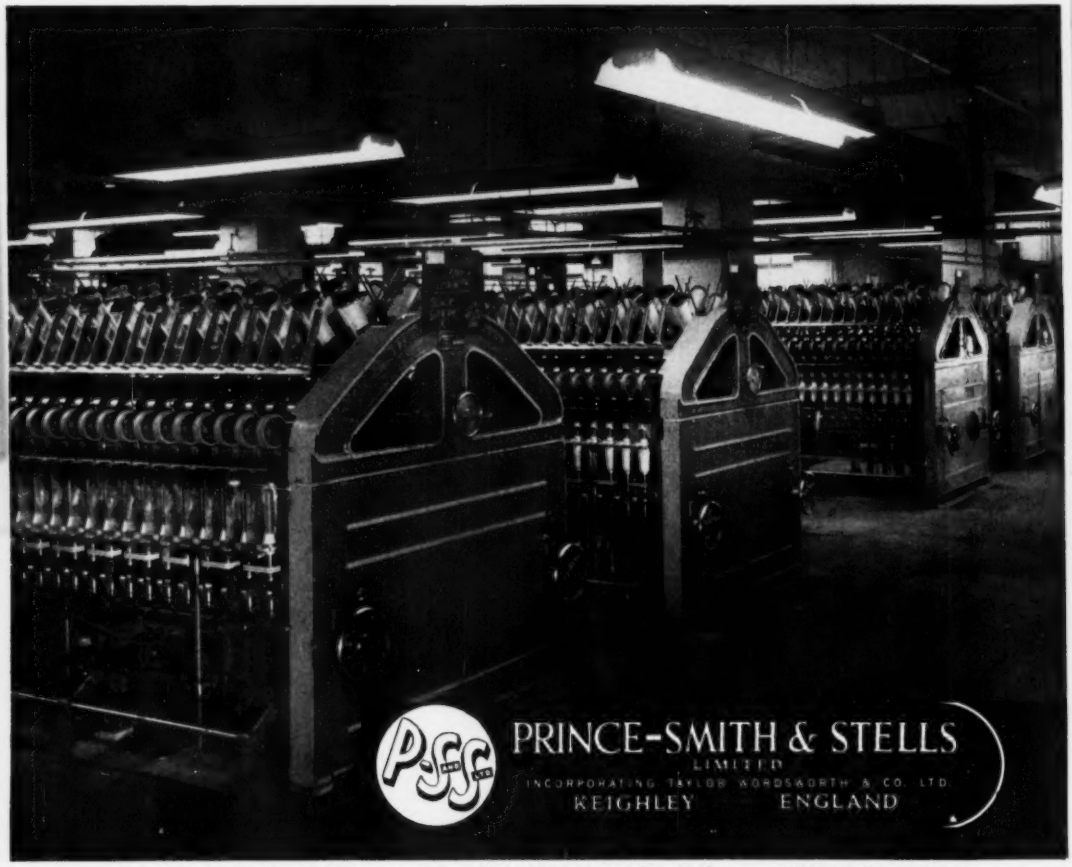
Large Package High Speed

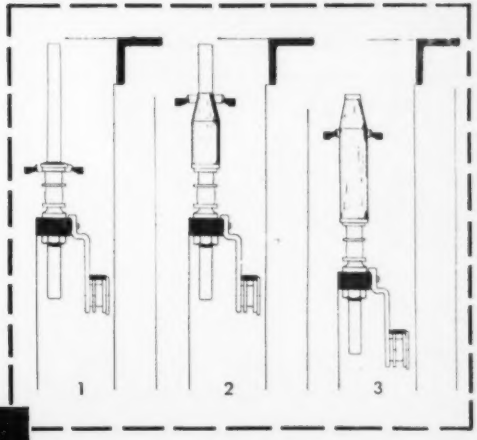
MAGNUM RING SPINNING FRAME

The Magnum Ring Spinning Frame combines the valuable features of a stationary ring rail spinning frame, with the good points of a traversing ring rail type of machine. It eliminates practically all the disadvantages of both, with the result that very large packages may be used with complete success. These packages may go up to 8 ounces and cover counts up to 42's. The greater length on the bobbin allows for fewer doffings, consequently, higher efficiency of the machine and the operatives. Less frequent creeling in later winding operations is a valuable indirect benefit. This is a *tested* and well *proven* spinning frame which has demonstrated its ability in hundreds of mills to produce excellent quality worsted yarn at high speeds. It would be a pleasure to send you data on the capabilities of the Magnum Ring Spinning Frame with reference to the type of yarns you produce.

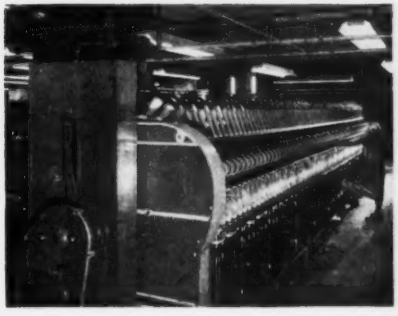


U.S.A. Agents for French System Machinery: Blake Electric Mfg. Co., 43 Commercial Wharf, Boston 10, Mass.

How Magnum action steadies the balloon



Progressive stages of building the bobbin are shown in the illustration. You will note that the spindle rail is stationary until the bobbin is half filled. At this time it starts to drop in order to compensate for the rise of the ring rail. This dual action maintains a relatively constant balloon. With this control, yarn breakage is quite infrequent, in fact you will find that your yarn will now contain only about a quarter of the knots formerly experienced from standard ring frames.



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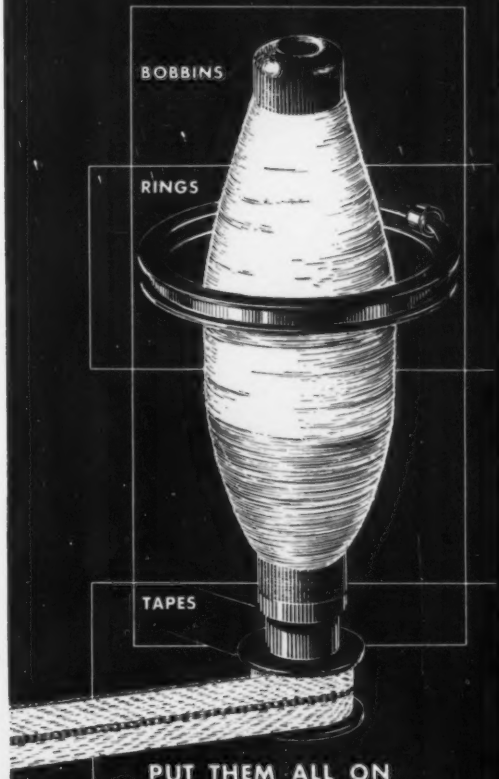

PUT THEM ALL ON
THE SAME ORDER
7a

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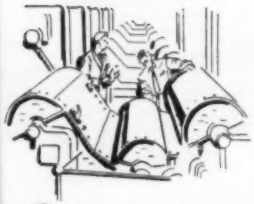
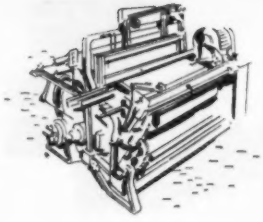
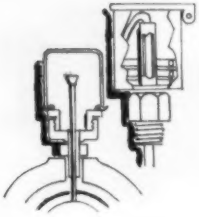


❶ survey equipment

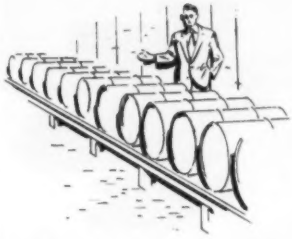


❷ specific recommendations

❸ lubrication charts



❹ application methods



❺ storage and handling

❻ individual problems

Gulf's comprehensive lubrication plan can help you reduce costs straight down the line. Call your nearest Gulf office today.

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Yours for the asking!

A BOOK PACKED WITH INFORMATION FOR THE TEXTILE INDUSTRY

Here is a wealth of practical, helpful information compiled by the Burroughs Adding Machine Company.

While "Textiles Accounting" deals mainly with modern accounting methods, developed by Burroughs for the textile industry, it also contains a great deal of information about the structure of the industry, its materials and its manufacturing processes.

Written in simple language, this book should prove useful in many departments of your business. It's available to you without cost. Just call or write your nearest Burroughs office, listed in the yellow pages of your telephone book, or mail the coupon.

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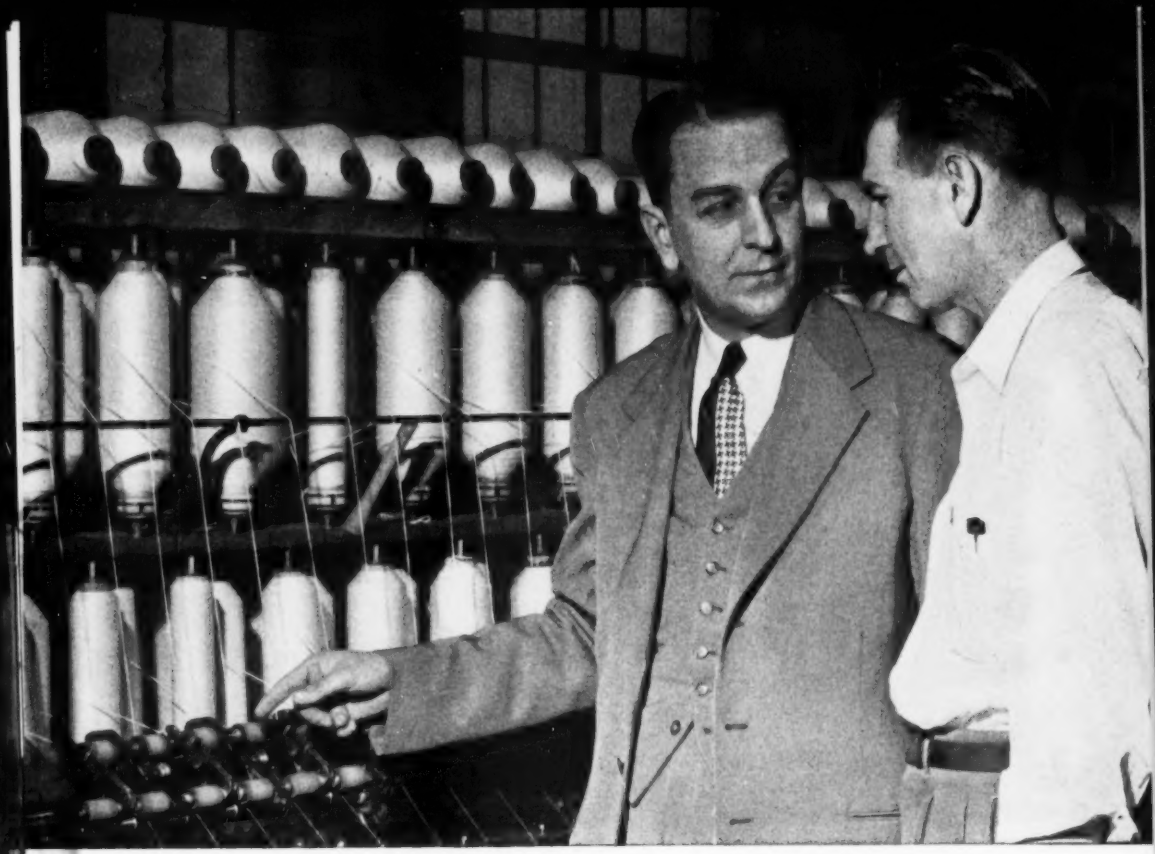
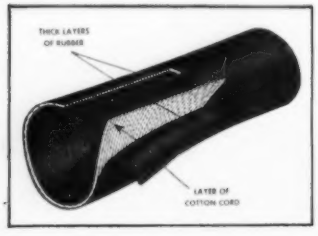


It's a long time between changes with these Armstrong's Aprons

When you put these aprons on, they *stay* on for years. Mill after mill reports Armstrong's Accotex® Aprons give six to eight years of top-quality, two-shift spinning.

If you could cut an Accotex Apron open, as shown below, you'd see the reason for this outstanding service. It's Armstrong's patented three-layer construction . . . an apron with each part made especially for the job it does.



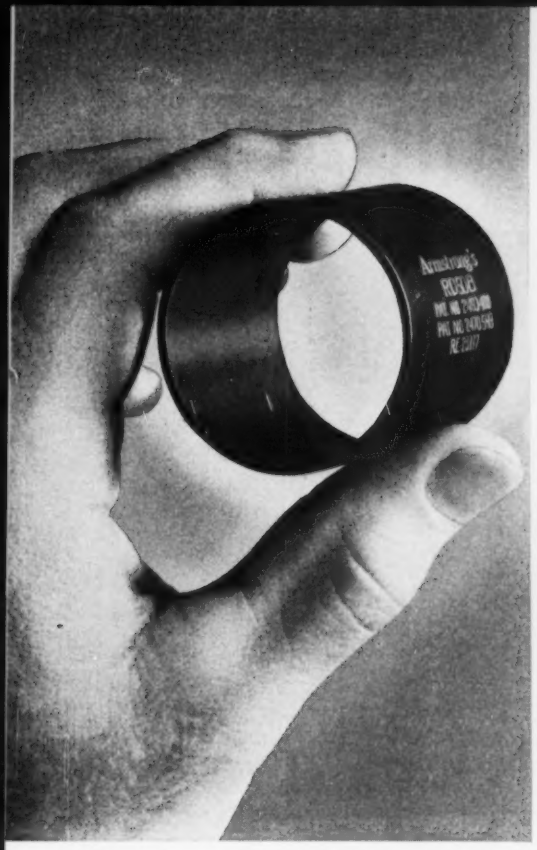
Take the outer layer of synthetic rubber. It's specially compounded for smoothness and good drafting qualities. In use, it wears evenly, keeping its surface smooth and free of cracks and breaks.

The core of the apron is a layer of strong cotton cords. These cords can't stretch. They keep the apron's dimensions constant and also prevent its edges from curling.

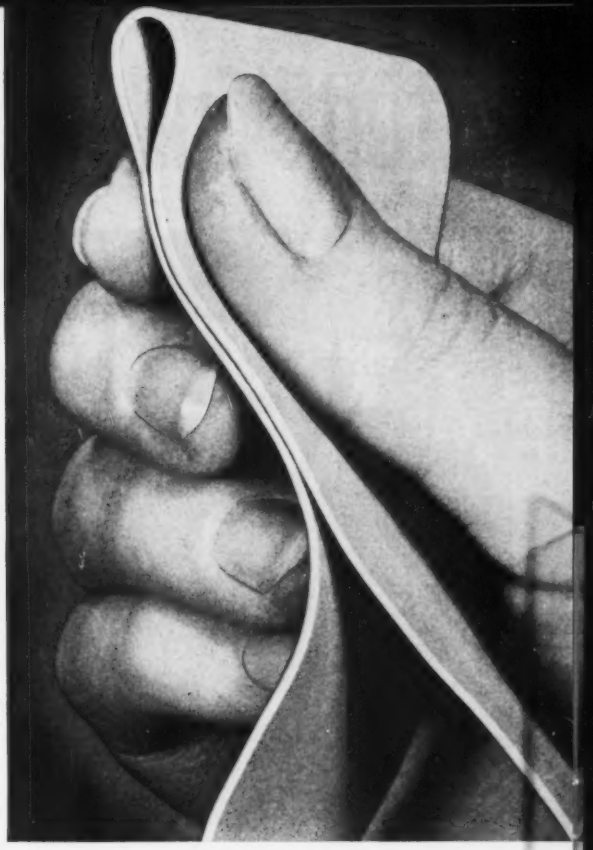
Finally, there's an inner layer, also of synthetic rubber. Like the outer layer, it does a special job . . . resists abrasion. It stands up under the constant rubbing of millions of trips over the nose bar during the life of the apron.

Vulcanized together, these three layers form a seamless apron that runs clean, stays smooth, and lasts for years—as fine a synthetic apron as can be made today.

If you use long-draft equipment, either single or double-apron type, you ought to prove to yourself how efficient Accotex Aprons can be. To arrange for a test on your own frames, call your Armstrong Representative or write to Armstrong Cork Company, Textile Products Department, 8308 Arch Street, Lancaster, Pennsylvania. Available for export.

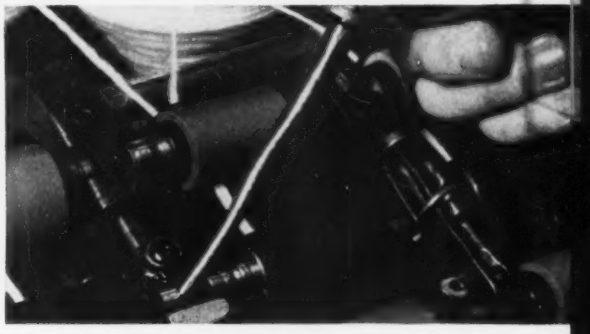


NO SEAMS. Smooth continuous layers of Accotex rubber on inside and outside of Armstrong aprons assure you of even drafting, prevent irregularities in the yarn. Seamless construction means *no* breaks, *no* cracks, no weak points to shorten service life.



SUPER FLEXIBLE. This NO-750 apron has the extra flexibility needed to hug the nose bar on single-apron frames. You can be sure of smooth slip roll action. It wears a long time too, and because the rubber is non-oxidizing, it stays flexible for years.

SATIN SMOOTH. Accotex Aprons are precision ground for smoothness to the exact dimensions you specify. They stay smooth, too, and wear evenly without breaking or cracking. Accotex aprons won't roughen, even after years of constant service.

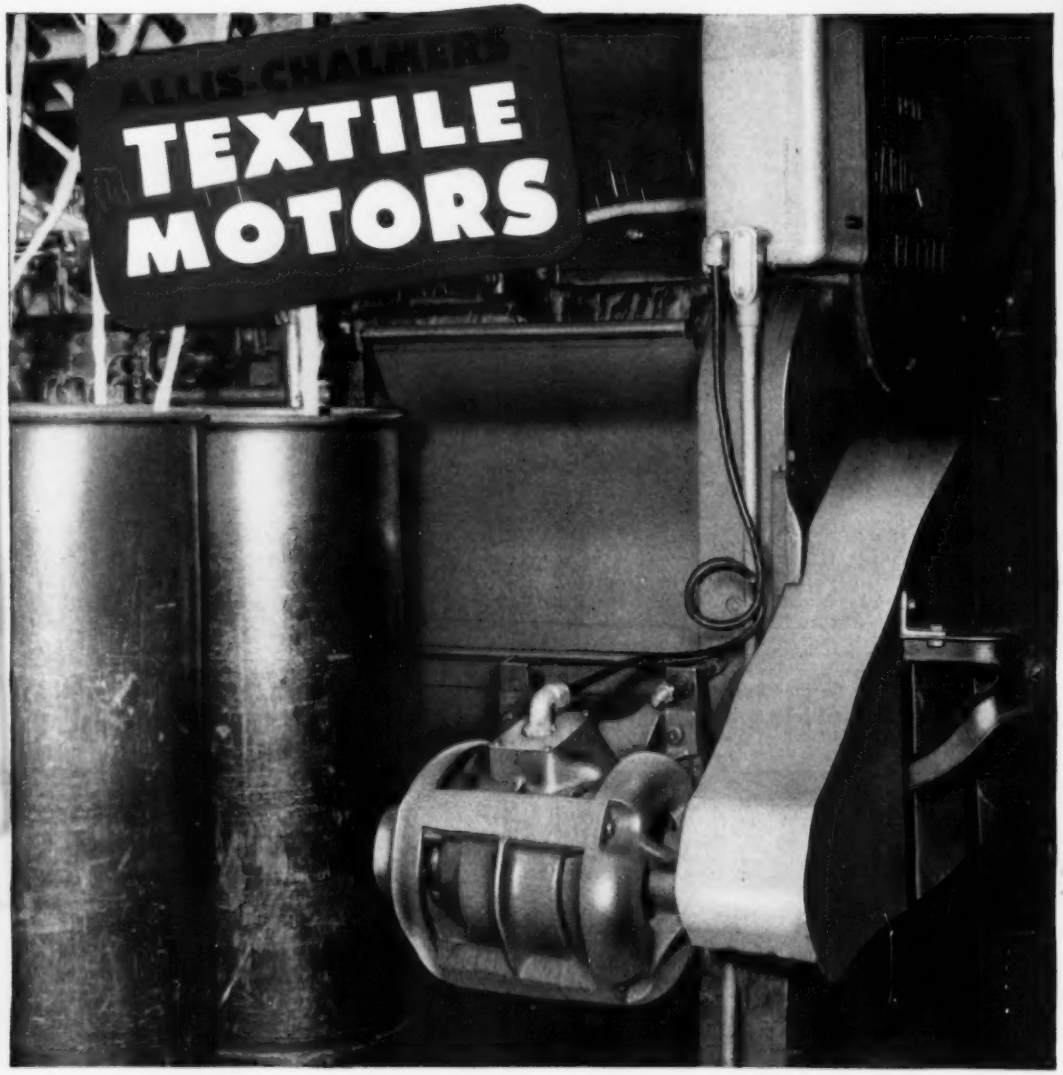


UNAFFECTED BY OIL, TEMPERATURE, OR HUMIDITY. Accotex Aprons run clean because they don't absorb oil or soften when exposed to dyes or commonly used textile solvents. They run efficiently without sweating at any normal mill temperature.

ARMSTRONG'S ACCOTEX APRONS

One of Armstrong's complete line of textile mill supplies

Stop "Ends Down" Due To



ALLIS-CHALMERS

A-C ALLIS-CHALMERS

Originator of the Multiple V-Belt Drive for the Textile Industry

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Rough Roving Frame Starts

Allis-Chalmers roving frame motor accelerates slowly and smoothly...produces uniform roving ...is unaffected by air-borne lint.

YOU CAN REDUCE ends down when starting roving frames . . . cut lost production in spinning caused by thin spots in the roving yarn . . . by using Allis-Chalmers slow-accelerating roving frame motors on your roving frames, slubbers and other yarn drawing machines. This motor is built with special slow, extra-smooth acceleration characteristics to provide even tension on the roving during starting periods.

LINT-FREE *QUICK-CLEAN* DESIGN

Quick-Clean wide open frame design allows powerful fans to sweep lint and dirt in, out and away with the cooling air. Interior surfaces are smooth and hard. Large air passages are contoured to aid air flow.

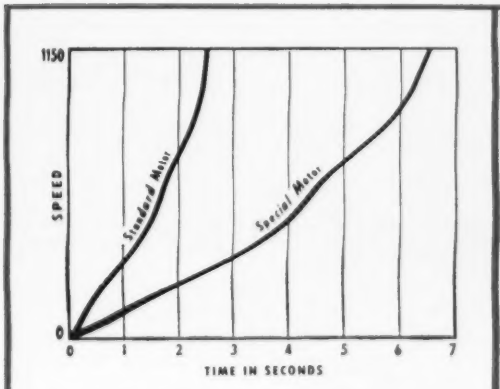
Bearings are lubricated and sealed at the factory and should need no attention for years. Grease cannot leak from the bearings to soil materials or collect dirt. Lint and dirt cannot enter bearings.

ONE SOURCE FOR COMPLETE DRIVE

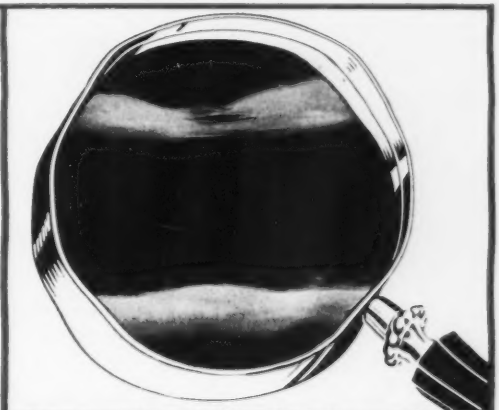
Allis-Chalmers can supply your complete machine drive needs — motor, control and *Texrope* V-belt drive — from one responsible source. Allis-Chalmers application engineers, practical men with an intimate knowledge of the textile business, will help you select exactly the right combination for your particular requirements.

For complete information on Allis-Chalmers products for the textile industry, ask your Allis-Chalmers District Office representative or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3786

Quick-Clean and Texrope are Allis-Chalmers trademarks.



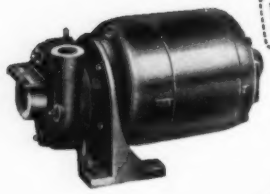
Notice how the Allis-Chalmers roving frame motor requires almost three times as long as a standard motor to reach full speed.

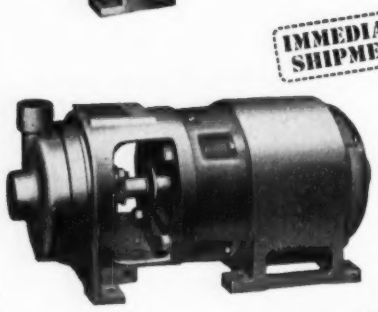


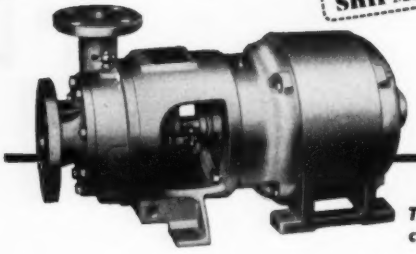
Notice thin spots in upper piece of yarn caused by rough start of roving frame. This is one of the chief causes of ends down and lost spinning production.

IMMEDIATE SHIPMENT

...OF I-R MOTORPUMPS







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K
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Recommended from complete line, meeting all degrees of scourability and discoloration resistance.
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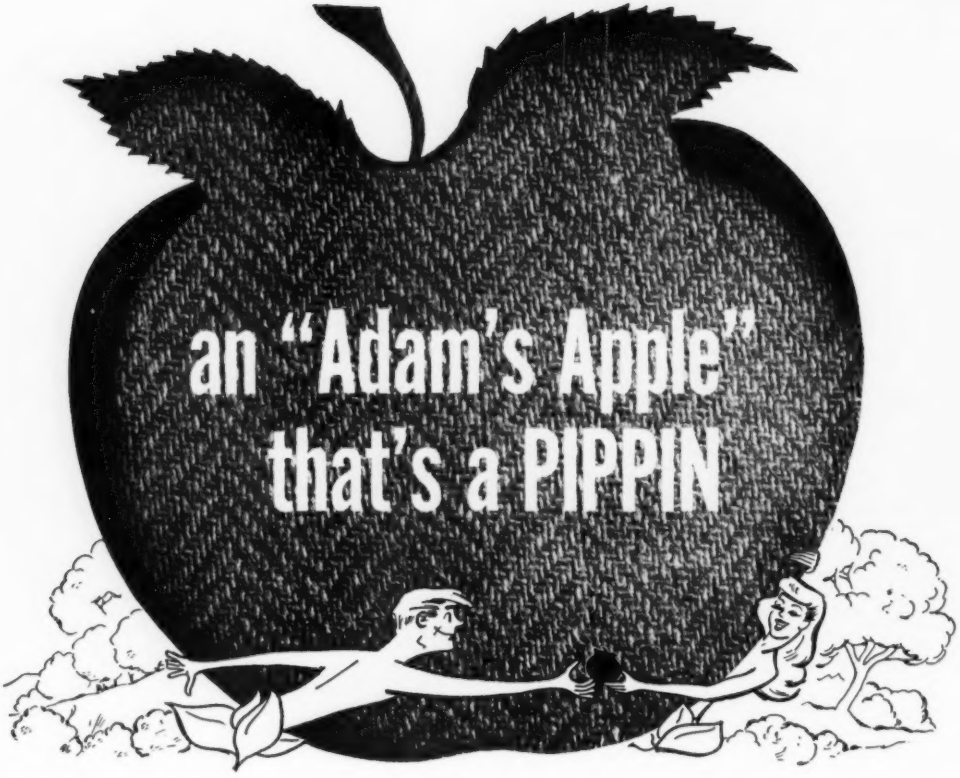

You've probably heard them say in the industry: "Wetting agents are like Adam's apples, everybody's got one." And by "everybody," of course, they mean the makers of textile chemicals.

We're no exception; we have an "Adam's apple"—and it's a *pippin*. We offer it in the firm belief that it will not only benefit *you* but all the Adams and Eves who utilize your fabrics.

Our product is Nopco® 1086-A—an excellent wetting and rewetting agent, applicable in mild alkaline, mild acid, and neutral solutions.

We are confident 1086-A, one of the quality chemicals of our outstanding NOPCOWET* Series, will do a remarkably good job for you in numerous operations, and suggest you'll find it especially advantageous when employed as—

(1) a wetting agent in starch and softener mixes;

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(4) a wetting agent in the processing of wool for chlorine shrinkproof treatment.

Nopco 1086-A sells competitively. In fact, it saves money for its users, since in virtually every application it proves more economical than comparable agents of this type.

If you are not using Nopco 1086-A already, consult with us. We'll gladly supply full information, and have our Technical Service Department work closely with you to achieve improvements . . . obtain goods with appeal that results in more satisfied customers and a bigger bite out of the market for you.

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. . . to Boger & Crawford spun nylon yarn! 60/2 and 80/2 ply.

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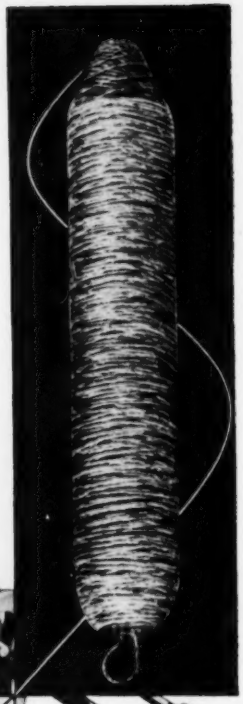
Why Automatic Cop Winding?

For winding coarse yarns such as jute, hemp, paper, linen, carded wool or any other coarse textile fiber, there's nothing to compete with the original

SCHWEITER AUTOMATIC HOLLOW COP WINDER, type MT



- Reliable, trouble-free automatic operation
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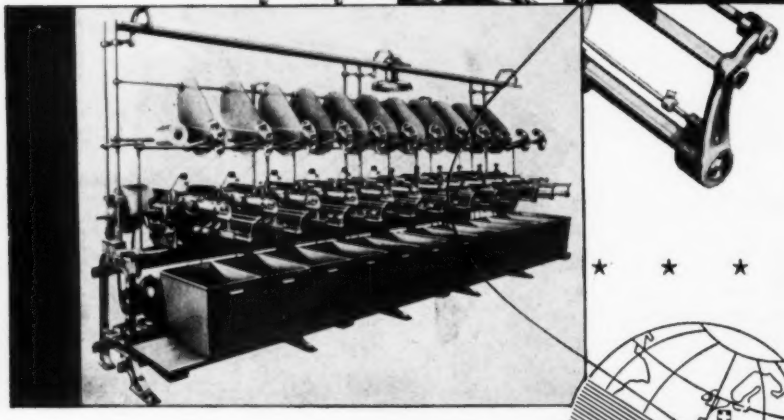
- Huge savings in time, labor and money
- Pays for itself quickly



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Manufacturers of Dyestuffs for the Textile Industry

Next summer
keep mill temperatures even...

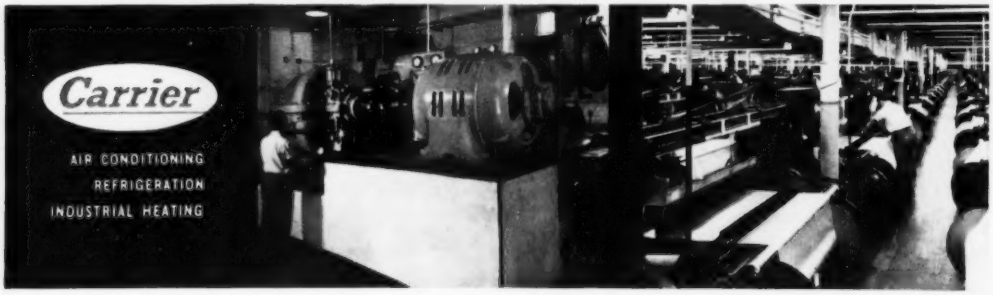
Add Carrier Refrigeration Now!

Your evaporative cooling system — good as it is — probably wasn't good *enough* to keep your mill temperature where you wanted it all this summer.

Didn't you find the hotter it gets outside, the harder it is to hold relative humidity *and mill temperature too?* And on really hot days didn't you have to either raise the humidity or let temperature go up?

It's a common problem, but the solution is simple. Just add Carrier Refrigeration to your present evaporative cooling system. *Then* you will have year-round control of both temperature and humidity. Day in, day out, temperatures will be *even* regardless of outside conditions. And the increase in your plant efficiency will soon pay for the cost of the refrigeration.

Now is the time to act. Get your installation in early and be sure you're ready by spring. Call or write us today, and we can show you how simple it is to add refrigeration, and how even temperatures will increase your profits. Carrier Corporation, Syracuse, New York . . . *for 50 years — the people who know air conditioning best.*



Step by step, this South Carolina mill added Carrier Refrigeration to their evaporative cooling system. Today, 2500 tons of refrigeration, supplied by Carrier Centrifugal Refrigeration Machine (pictured on the left), keep plant efficiencies high by holding temperatures and humidities constant year 'round.

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FROM OLD SPINNING AND TWISTING FRAMES

Ball Bearing Tension Pulleys
Individual Drive Pulleys
Alumimum Alloy Separators
Silent Chain Drive
High Strength Shafting mounted on Heavy Duty, Self-aligning Ball Bearings

SCORES of mills have found that they can salvage millions of dollars in capital investment —and at the same time make their yarn output competitive in *quality*, *quantity*, and *cost*—by modernizing their band-driven or old-style tape-driven spinning and twisting frames with "Meadows Modernizers."

A typical Meadows "Conversion" consists in the installation of individual drive pulleys, ball bearing tape tension pulleys, aluminum alloy separators, silent chain drive, and high-strength polished and ground steel shafting, mounted on heavy-duty, self aligning ball-bearings.

The result is lower power consumption, even tension at all times, a more uniform speed and twist, fewer ends down, and increased yarn production . . . at far less than the capital investment cost of new frames. Can be easily and quickly installed. Write or call us for estimate and particulars.

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The Wm. Powell Company
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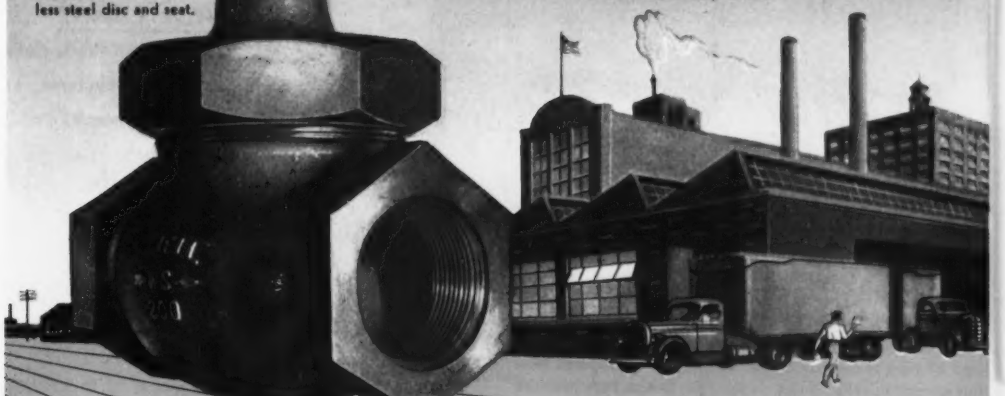
Fig. 2608. 200-pound Bronze Globe Throttling Valve. A Powell design that permits full flow through the seat when wide open. Has special bronze stem and stainless steel disc and seat.



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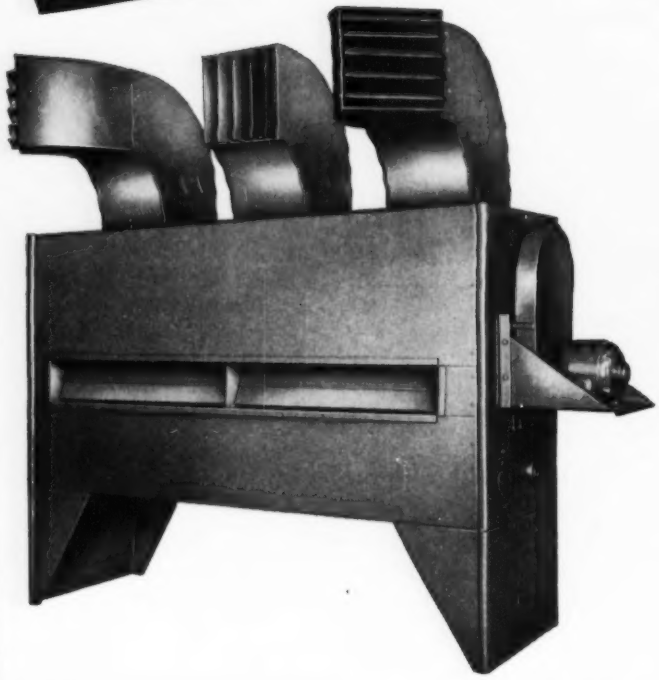

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GENERAL PURPOSE HEATER
for manufacturing areas, warehouses, garages, commercial buildings — with standard heating coils.

HEAVY DUTY HEATER
for continuous-duty high-pressure systems, or industrial process work — with wrought iron heating coils.

EXCLUSIVE STURTEVANT FEATURES

HEAVY DUTY HEATERS—For rugged service, wrought iron 1" pipe is used instead of copper tubing. Tapered steel fins are metallically bonded to the pipe. Solder bath provides permanent bonding and corrosion-resisting external coating. Internal steam distributing pipes are also wrought iron, protect against freezing. *The entire coil assembly is as rugged as the connecting steam lines.*

SMOOTH EXTERIORS—Die-formed casings with rounded corners eliminate accident-causing sharp edges and dirt-catching pockets. Removable panels aid inspection.

ONE WARRANTY—Only Westinghouse makes all principal components—fans, heating coils and motors. You get unit engineering and single equipment responsibility.

Other features are:

WIDE RANGE OF SIZES—Heat output up to 2,500,000 btu/hr; air volumes up to 25,000 cfm; steam pressures up to 200 psig. ACCESSORIES—Filter boxes optional for mechanical air cleaning. Mixing boxes optional for proportioning outside and re-circulated air.

For more information, contact your nearest Westinghouse Sturtevant office. Or write for Catalog 1510, soon off the press. Address Westinghouse Electric Corp., Sturtevant Division, Hyde Park, Boston 36, Mass.

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Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo Charlotte • Chicago • Cleveland • Denver • Detroit • Greenville (Miss.) • Houston Jacksonville • Kalamazoo • Los Angeles • Minneapolis • New York • Philadelphia Pittsburgh • Providence • St. Louis • San Francisco • Seattle • Yakima (Wash.)
In Wisconsin: General Chemical Company, Inc., Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

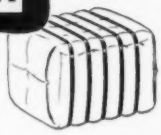
Acme Steel Strapping Insures S.A. *(Safe Arrival)*

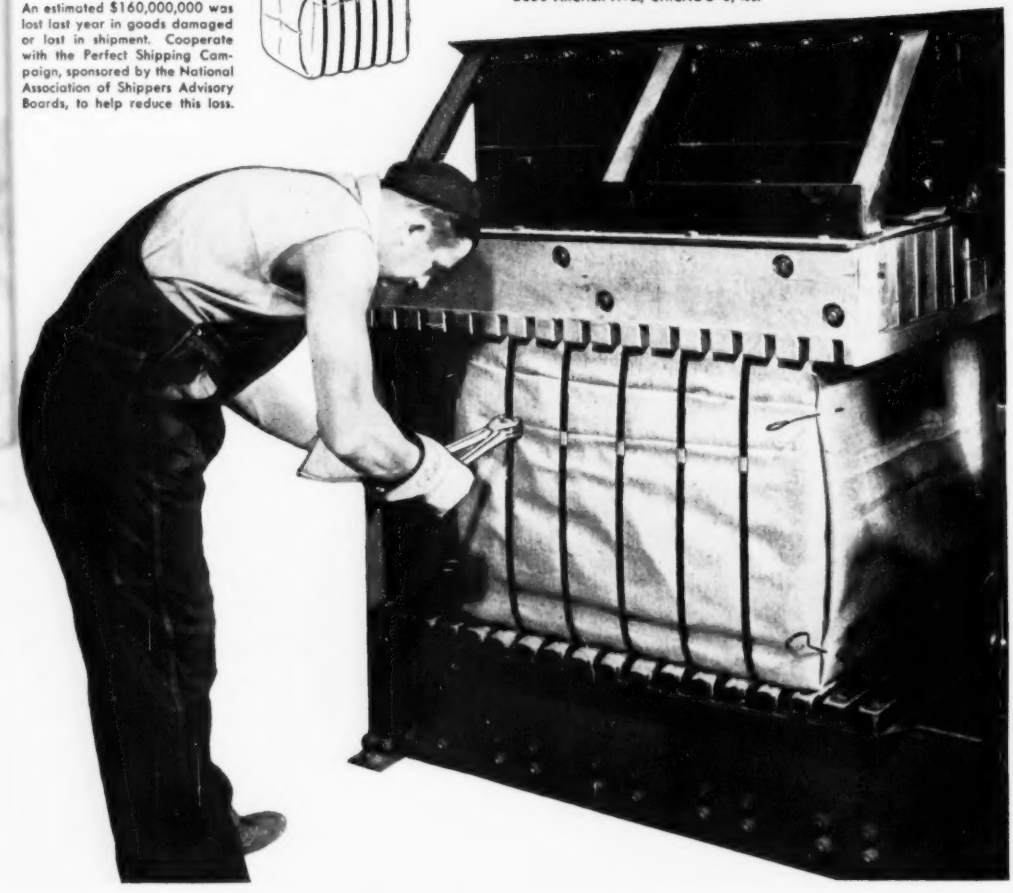
ACME STEEL

ACME STEEL CO. CHICAGO

ACME STEEL PRODUCTS DIVISION
ACME STEEL COMPANY
2820 ARCHER AVE., CHICAGO 8, ILL.

An estimated $160,000,000 was lost last year in goods damaged or lost in shipment. Cooperate with the Perfect Shipping Campaign, sponsored by the National Association of Shippers Advisory Boards, to help reduce this loss.



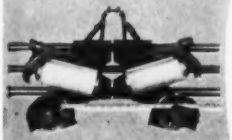


For more information, write direct or use Reader Service post card.

Mount Hope PRECISION GUIDERS

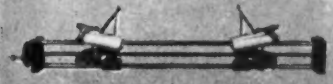
Safe, Positive Control on All Types of Material

GUIDER HEAD



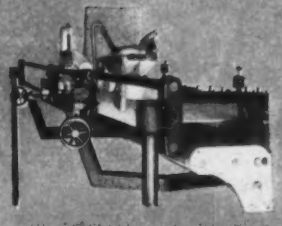
NARROW FABRICS GUIDING

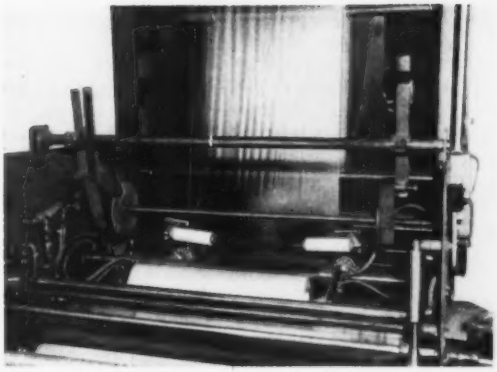
FLOOR STAND



BRACKET STAND

TENTER STAND CLIP TYPE, OR PIN TYPE WITHOUT ELECTRIC FEEDERS





Mount Hope Precision Guiders *maintain accurate lateral alignment—give positive but gentle control within extremely narrow limits.*

Mount Hope Precision Guiders handle all types of material, from delicate films to heavy tirecord.

Illustration shows guiding and opening out to full width Polyethylene films —courtesy of Gering Products, Inc., Kenilworth, New Jersey.

New Guider Bulletin PG on request—
or ask a Mount Hope Engineer to call—
no obligation

MOUNT HOPE
MACHINERY COMPANY
15 FIFTH STREET, TAUNTON, MASS.

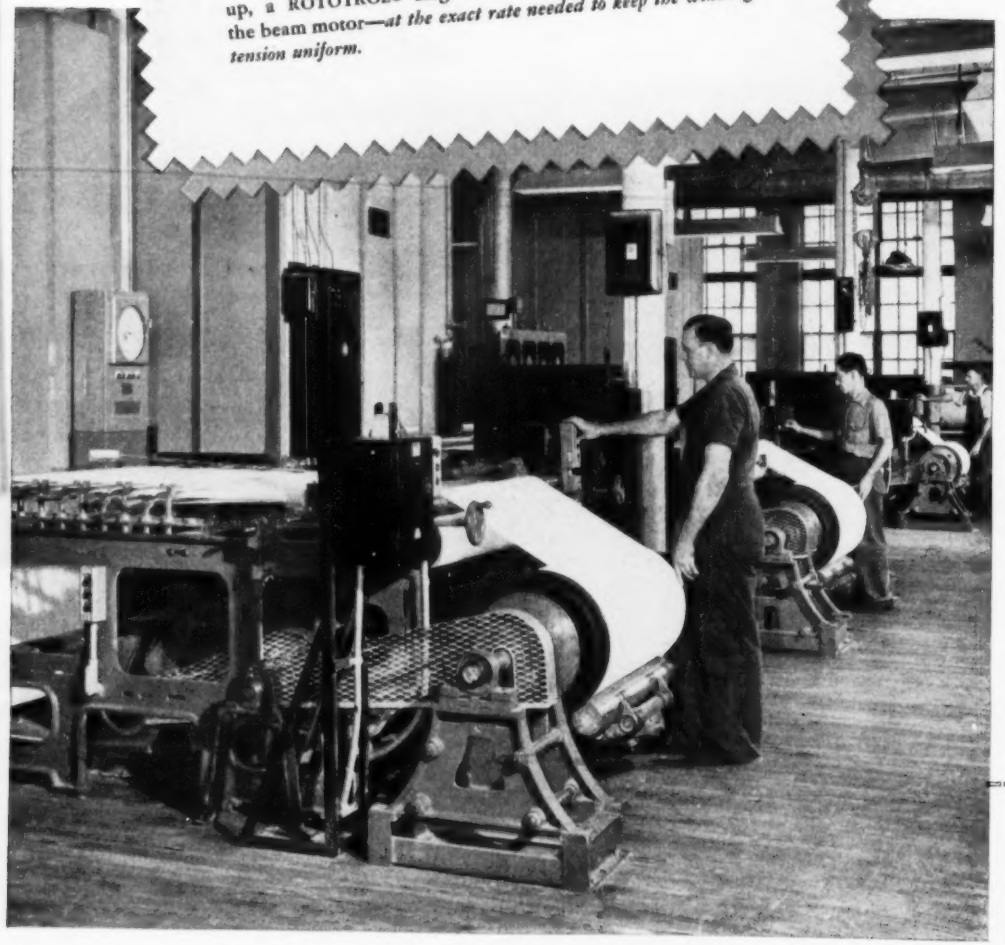
YOU CAN BE **SURE**.. IF IT'S

Westinghouse

How slasher speed was safely doubled

Here are the three Westinghouse-equipped slashers now doing the work of six—because slasher speed was safely doubled.

It was possible because Westinghouse drives hold yarn tension constant. The size box, delivery roll and beam are each driven by a separate motor. And as the beam builds up, a ROTOTROL® Regulator automatically slows down the beam motor—*at the exact rate needed to keep the winding tension uniform.*



For more information, write direct or use Reader Service post card.

New drive saves cost of running three slashers

Three slashers replace six; speed safely doubled by precise tension control

By switching to slashers with new Westinghouse Multi-Motor Drives and Uxbridge "Gentle Air" drying units, Borden Mills at Kingsport, Tennessee, now operate only three slashers where they formerly required six. And *production has been maintained.*

The three-for-six trade is possible because the new slashers run at 85 to 100 yards per minute, as compared with 40 to 45 yards per minute for the old units. These high speeds are safe because the Westinghouse drives hold yarn tension constant. Despite the speed doubling, slasher stoppages due to yarn breakage have been held the same or lower!

BEAMS MORE UNIFORM, TOO

The beams produced are now more uniform. The controlled tension makes the yarn hug the beam evenly—with no soft spots to snag yarn and cause breakage during weaving. These smooth-wound beams give straighter warp on the loom, permit better filling spacing.

MORE WARP PER BEAM

With tension uniform, these slashers wind more warp per beam. This means fewer beam changes—a saving in handling costs and fewer slasher and loom interruptions for starting new beams. Drawing-in costs are reduced in proportion to the decreased number of beams.

LESS SLASHER ROOM MAINTENANCE

The Westinghouse Slasher Drive has eliminated the friction clutch and all the headaches that go with it. Here's something to make the maintenance man happy: No bevel gears or line shafts. No overheating. Less friction and fewer passes with the grease gun. No alignment problems.

OVER 150 DRIVES IN USE

More than 150 Westinghouse Multi-Motor Slasher Drives are now in service. They can cut costs in *your* slasher room and give *you* better and faster weaving. Get the facts: Call your nearby Westinghouse office or write for Booklet B-4597. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-94842

Westinghouse

EQUIPMENT FOR THE TEXTILE INDUSTRY

only

ECLIPSE BOBBIN HOLDERS

OFFER THESE

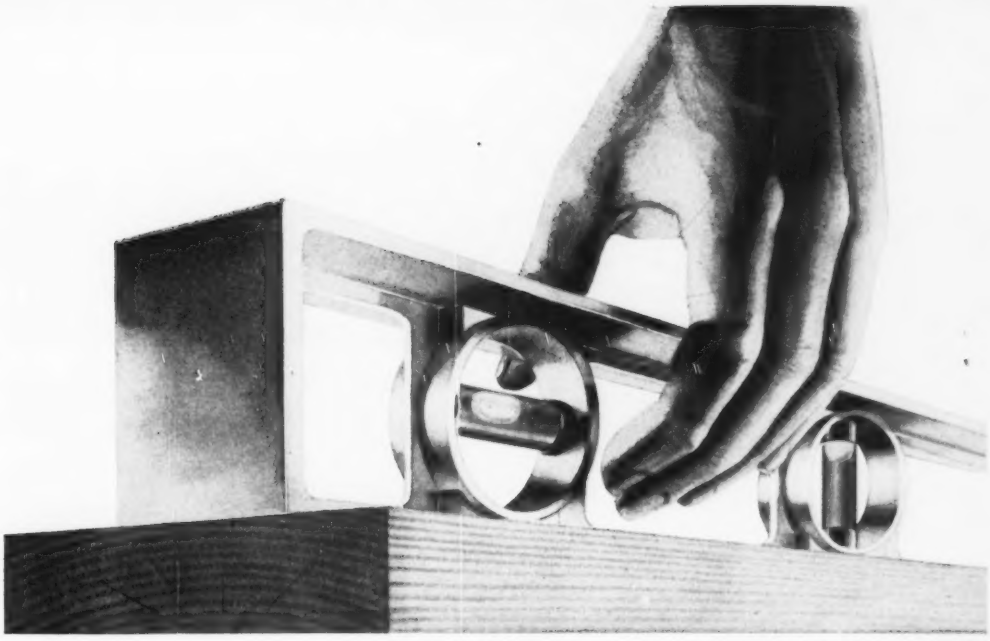
"BIG TEN" Features

1. **Completely replaces wooden skewers.**
2. **Stainless steel ball bearings minimize friction, resulting in uniform quality of roving.**
3. **Permits less twist. Tests indicate yarn of more even texture.**
4. **Creel boards easily cleaned. Overhead suspension leaves open creels. Blowers more effective.**
5. **Better spinning of spun rayon.**
6. **Easier creeling; less physical effort and fewer motions required.**
7. **Improved brake attachment prevents over-run and backlash.**
8. **Now cadmium plated and stainless steel balls more rust resistant.**
9. **Time-tested product—holders in operation for over ten years.**
10. **Easy to install; practically no upkeep.**

★ ★ ★

Textile men everywhere are concerned with efficiency and economy of operation, and that's just what these *exclusive* Eclipse features assure you! If you want to modernize your present plant equipment profitably, you can't go wrong with the finest—Eclipse Bobbin Holders. Write us for further details.

ECLIPSE MACHINE DIVISION of
ELMIRA, NEW YORK
Bendix AVIATION CORPORATION
Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.



For Fast, Effective Leveling–

CALSOLENE OIL HSA!

For Exceptional Dispersing, Wetting and Stability

For addition to dye liquors you couldn't use a finer dispersing, wetting and leveling agent!

CALSOLENE OIL HSA is outstandingly stable in hard water and under both acid and alkaline conditions.

In the preparation of goods to be waterproofed, CALSOLENE OIL HSA is an excellent choice, since it has no residual rewetting properties.

AHCO PRODUCTS
ARNOLD, HOFFMAN
Associated with
Imperial Chemical Industries Ltd.
London, England

ARNOLD, HOFFMAN & CO., INCORPORATED · EST. 1815 · PROVIDENCE, R. I.
Offices: Charlotte, Cincinnati, New York, Teterboro, Providence
Plants: Charlotte, N. C. · Cincinnati, Ohio · Dighton, Mass.

Full details on this superior product will be provided on request.

HIGH FASHION DECREES

CRÊPE

...AND CRÊPE DECREES

C&K LOOMS

THE CRÊPE DRESS: new figure in fashion

Inimitably **MATTIE CARNEGIE:** her version of the new soft dress . . . a slim silhouette, gracefully broken by a draped-to-the-hip floating panel, lined in contrasting color. At I. Magnin, California. Frost Bros., San Antonio; Martha Weatherred, Chicago. In rayon and acetate crêpe woven on looms manufactured by **CROMPTON AND KNOWLES LOOM WORKS.**

CRÊPE is front-page news again, in the high-fashion magazines, and in the smart shops and resorts. Says VOGUE: "Women have *always* loved the flattery of crêpe — it has such a cool flow and cling." Yes, crêpe is back . . . back to *stay*.

And today's modern crêpe fabric (entirely different from the old-fashioned crêpe of the 1920's) *has only one origin* . . . the modern S-6 Loom built by C&K in all widths . . . 2 x 1 . . . 4 x 1 . . . 4 x 4 . . . bobbin-changing . . . shuttle-changing . . . dobby . . . jacquard . . . call box . . . filling mixing . . . pick and pick . . . many shuttle sizes.

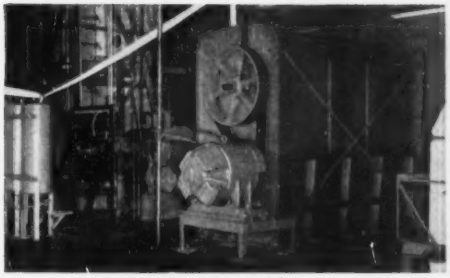
See the special section of advertising on crêpe in the July 1 issue of VOGUE (the C&K page is reproduced above). *Then see C&K!*

Crompton & Knowles LOOM WORKS

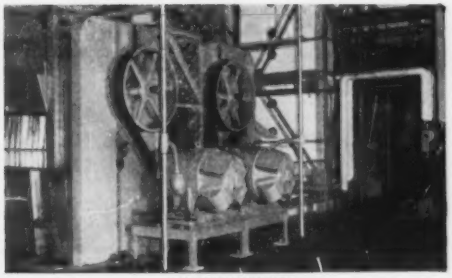
WORCESTER 1, MASSACHUSETTS, U. S. A.

PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA. • CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I. • CROMPTON & KNOWLES OF CANADA, LTD., MONTREAL, QUE.

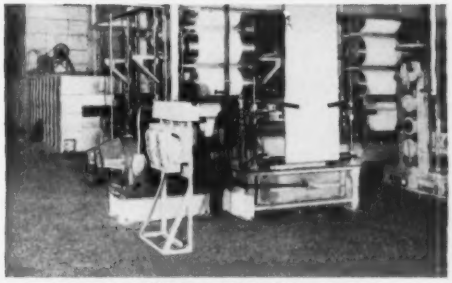
From grey goods to finished roll...



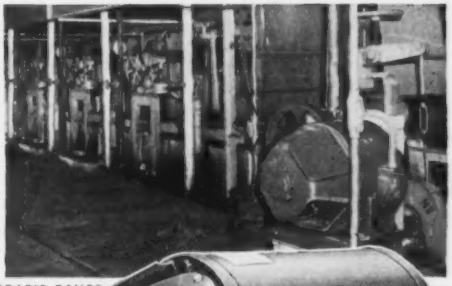
BLEACHING RANGE



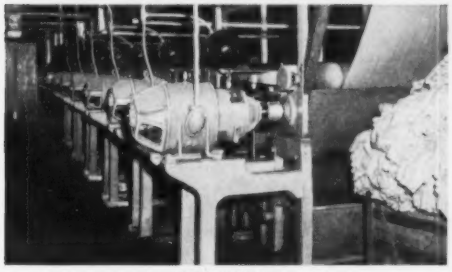
DOUBLE WASHER



WHITE GOODS RANGE



SOAPER RANGE



OPEN SOAPER

STARCH RANGE

RANGE DRIVES BY *ELLIOTT CROCKER-WHEELER* DC MOTORS

supply the closely controlled adjustable speed required to keep tension rigidly uniform, and the sturdy construction that insures dependable performance under conditions where unexpected stoppage or non-uniform operation would ruin or damage goods in process.

Elliott Crocker-Wheeler DC motors are available in all ratings from 1 through 200 hp in open, dripproof, splashproof and totally-enclosed types.

ELLIOTT Company

CROCKER-WHEELER DIVISION
AMPERE, N. J.

For large motors: RIDGWAY DIV., RIDGWAY, PA.
Plants at: JEANNETTE, PA. • RIDGWAY, PA. AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES
ELLIOTT APPROVED SERVICE SHOPS COVER THE COUNTRY

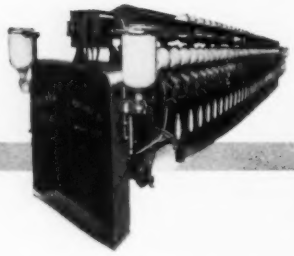
W2-14

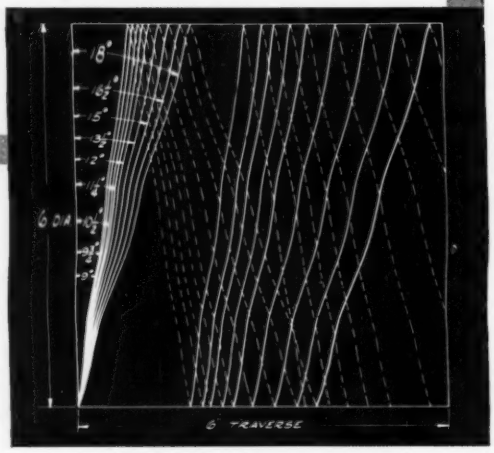
FOSTER MODEL 102

FOR WORSTED YARNS

FINEST SOFT TWIST YARNS WOUND WITH ***MINIMUM BREAKAGE***

MINIMUM TENSION IS THE REASON





Angles of wind obtainable on Foster Model 102.

Because the Model 102 is a cam winder with thread traverse guide, all tension can be removed, without losing control of the yarn, if desired, when winding soft twist knitting yarns. This means MINIMUM BREAKAGE.

The angle of wind required to produce a non-bulging cone with your yarns can be provided. The range is from 9° to 18°.

Upkeep on this machine is also low. Hardened metal thread guides and tension devices have great resistance to cutting, even by hard twist worsted yarns. Repair costs run as low as $3.50 per year per 100 spindles.

OTHER OPERATING ECONOMIES include: 7" traverse cone, if desired • self threading slub catching attachments • easy doffing of empty bobbins (double conveyor is BELOW bobbin pins) • no rehandling of empty bobbins (conveyor empties into standard sized truck) • high winding speed, giving twice the production at 2/3 the cost, as compared with older models.

And don't forget Foster Model 102 FLEXIBILITY, which will be explained on request.

Empty bobbin conveyor discharging into standard sized truck.

FOSTER MACHINE CO., Westfield, Mass., U.S.A.

Southern Office: Johnston Bldg., Charlotte, N. C.
Canadian Representative: Ross Whitehead & Company Limited, 1475 Mountain Street, Montreal, Quebec
European Representative: Muschamp Taylor Limited, Ashton-Under-Lyne, England

Speaking of picking beauties—

take a look at this redhead!

This red-headed Dayton Super Picker consistently outlasts other makes—often by as much as 2 to 1! That longer life means less down-time, more cloth production. And because the Super Picker runs cooler, shuttles last longer.

Rounded front edges eliminate hanging filling . . . narrow back permits free non-wear on lay-in strap . . . flared bottom makes picker stick easier to apply. May be used on high-speed and standard speed looms.

Put the Super Picker to work on your looms—*prove* in your own mill that it will outpick any ordinary picker on the market! Ask your salesman, or: Dayton Rubber Co., Textile Div., Woodside Bldg., Greenville, S. C.

The Dayton Thorobred Picker performs with top efficiency at low cost. Patented symmetrical loop construction holds picker in correct contact position. Picker stick hole is designed for correct shuttle contact, eliminates striking at an angle.

Dayton Rubber

Since 1905

TEXTILE PRODUCTS FOR BETTER SPINNING AND WEAVING

'Round the World 1113 times for $1.00

Calculations based on performance records of Victor 4/0 F1.1 X3D Travelers show that one dollar's worth ran about 27,840,000 miles — 1113 times the distance around the equator.

When you see performance like that, it's easy to think that traveler costs are too small to be worth bothering about. But such records are achieved only when you choose the right traveler for the job, and get the best that money can buy.

Selecting travelers carelessly, without proper regard for quality, will quickly cut down the "mileage". Also, excessive ends down, plus frequent traveler changes, can boost your traveler-pound cost in yarn production far out of line.

When you choose Victor Travelers, a Victor Service Engineer will help you make sure to get the traveler best suited to your individual spinning or twisting. You also get extra long traveler-life, because Victor Travelers take top honors in any test for quality and uniformity.

Remember, traveler costs per pound of yarn depend, *never* on price, *always* on performance. Plan now to talk to a Victor man, whether you are running conventional fibers, synthetics, or blends. Write, wire or phone the nearest Victor office . . . for prompt service.

•

Keep a Step ahead with

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . . 20 Mathewson St. . . . . Tel. Dexter 1-0737

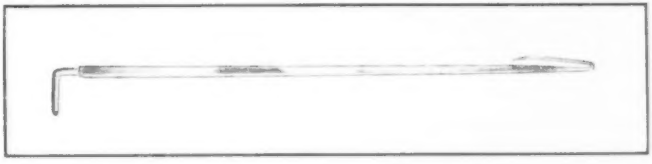
GASTONIA, N. C. . . . . 358-364 West Main Ave. . . . . Tel. 5-0891

For more information, write direct or use Reader Service post card.

the finer the denier

the sheerer the stocking

the better the needle must be!



The precise dimensional uniformity, exacting temper and smoother finish of TORRINGTON NEEDLES are your guarantee of top quality production, whatever the gauge requirements. May we show you how you can safeguard the quality of your merchandise by standardizing on TORRINGTON NEEDLES?

THE TORRINGTON COMPANY, Torrington, Conn., U. S. A.

Established 1866

Branches: New York • Philadelphia • Chicago • Greensboro, N. C. • Boston St. Louis • Bedford, P. Q. — Toronto, Canada. • *Pacific Coast Representative*: E. G. Paules, 1762 West Vernon Ave., Los Angeles 37, Calif. Broadgate House, 7-10 Eldon St., London E. C. 2, England.

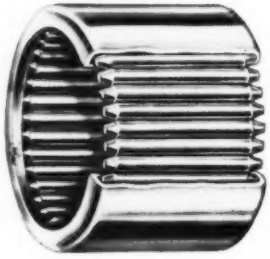
TORRINGTON

SPRING BEARD NEEDLES • SINKERS • DIVIDERS • SPLIT DIVIDERS

for long, dependable service...

Torrington Needle Bearings have set outstanding service records in countless applications throughout industry. The reason is simple. Needle Bearings are made to last. The one-piece shell which serves as the outer raceway is accurately drawn from carefully selected strip steel. After forming, it is carburized and hardened, with no further grinding that might destroy the wear-resistant raceway surfaces. The precision-ground rollers are thru-hardened for long life.

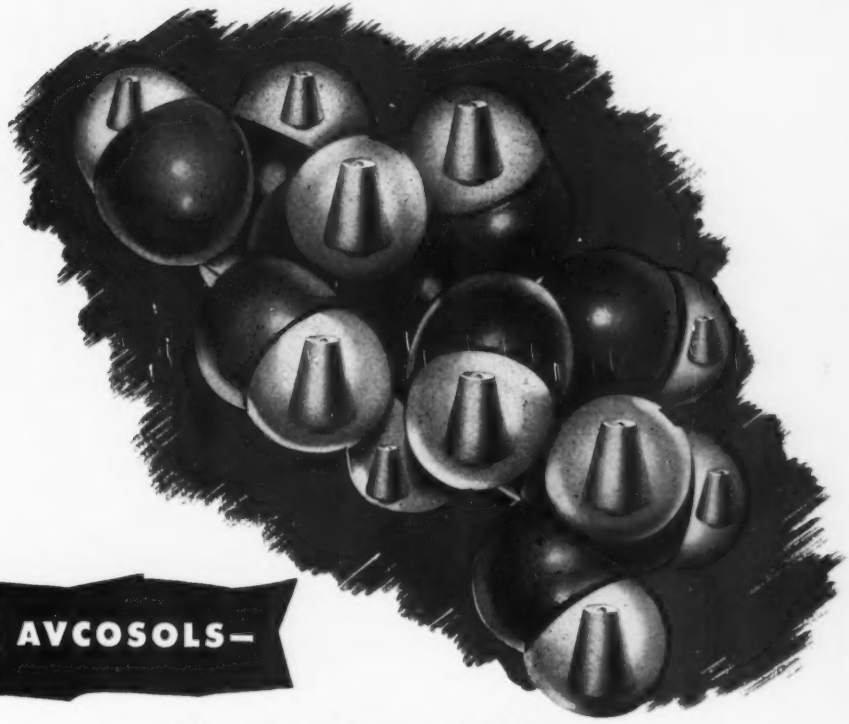
Because of this careful selection of materials and precision workmanship to close tolerances, Torrington Needle Bearings provide accurate, dependable performance in the most rugged applications. Ask our engineering department to help you determine how you can use Needle Bearings to advantage in *your* product.



THE TORRINGTON COMPANY
Torrington, Conn. South Bend 21, Ind.
District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON NEEDLE BEARINGS

Needle • Spherical Roller • Tapered Roller • Straight Roller • Ball • Needle Rollers



AVCOSOLS—

for chemical stability

Avcosol® 100 and 104 are chemically stable and completely uniform lubricants, softeners, and anti-static agents. They are outstanding examples of the new non-ionic materials whose versatility has established their wide-spread use throughout the industry.

Avcosols have excellent stability to acids, salts, and mild alkalies. They are compatible with dye liquors, sizes, and natural and synthetic resins used in finishing. In addition, they do not volatilize during drying operations. They are permanently stable in storage; do not affect shades and light or wash fastness.

Avcosols are used on synthetic fibers as finishes for dyed yarns and fabrics; as softeners and plasticizers for sizes and fabric finishes; and as lubrication and anti-static agents for carding, gilling, drafting, and combing.

Complete technical service and information on the latest research developments will be provided by American Viscose Corporation. For further information, write today—describing your particular end use.

Avcosols were developed in conjunction with and are manufactured by Atlas Powder Company, Wilmington, Delaware.

Avcosol: Reg. U. S. Pat. Off.

Avisco®

AMERICAN VISCOSE CORPORATION

You Can't Depend on these Numbers . . .

But You CAN Depend on Ashworth's 4-6-7

4 FACTORIES (Fall River, Worcester, Philadelphia, Greenville) assure you of an uninterrupted supply of card clothing. Decentralized and strategically located, these factories can "pinch hit" for each other in emergencies.

6 REPAIR SHOPS (Fall River, Philadelphia, Charlotte, Greenville, Atlanta, Dallas (Textile Supply Co.)) assure convenient, economical and prompt reclothing and repair service.

7 DISTRIBUTING POINTS (Fall River, Worcester, Philadelphia, Charlotte, Greenville, Atlanta, Dallas (Textile Supply Co.)) make Ashworth products and consultation service more readily available.

AND DON'T FORGET "90". More than 90 years of experience in cards and card clothing — your guide to a consistently high standard of quality in manufacture and efficiency in performance.

Buy Ashworth Card Clothing and get DEPENDABILITY.

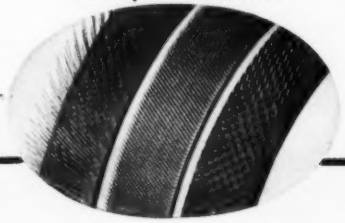
ASHWORTH BROS., INC.

American Card Clothing Co. (Woolen Division)

FALL RIVER • WORCESTER • PHILADELPHIA • CHARLOTTE • GREENVILLE
ATLANTA • DALLAS (Textile Supply Co.)

PRODUCTS AND SERVICES

. . . Card Clothing For cotton, wool, worsted, silk, rayon and asbestos cards and for all types of napping machinery. Brusher clothing and card clothing for special purposes. Lickerin wire and garnet wire. Sole distributors for Platt's metallic wire. Lickerins and top flats reclothed.



Ashworth CARD CLOTHING

HUNTER *equipment*

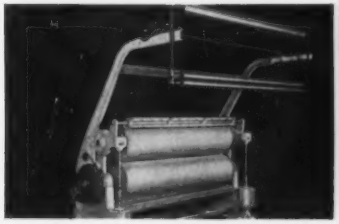
safeguards quality

at [redacted]

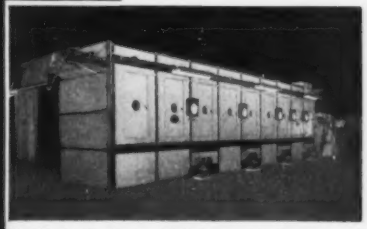
DESIGNED BY BRIGANCE

Leading designers know that Anglo Fabrics' special emphasis on quality consistently results in the production of textures and surfaces that provide a background worthy of their finest fashions.

Many other quality-conscious mills throughout the world also rely on Hunter's superior "plus production" equipment to finish a wide variety of *cottons, blends, woolens* and *synthetics.*



Anglo Fabrics and many other mills have proof that pneumatically controlled Hunter Model "O" Squeeze Rolls, used on straight line production of every type of fabric, give more uniform extraction with higher percentage of moisture removed. Complete detailed information on these more efficient Rolls in BULLETIN SRR.



The Hunter Continuous Cloth Carbonizing Range (used by Anglo Fabrics) accomplishes high quality cloth carbonizing at highest possible hourly production. Included in the Hunter Range is a stainless steel (Type 316) acid tank, Model "O" Squeeze Rolls (described above) and a Hunter Roll Type Carbonizer. Send for BULLETIN CC.

plus production

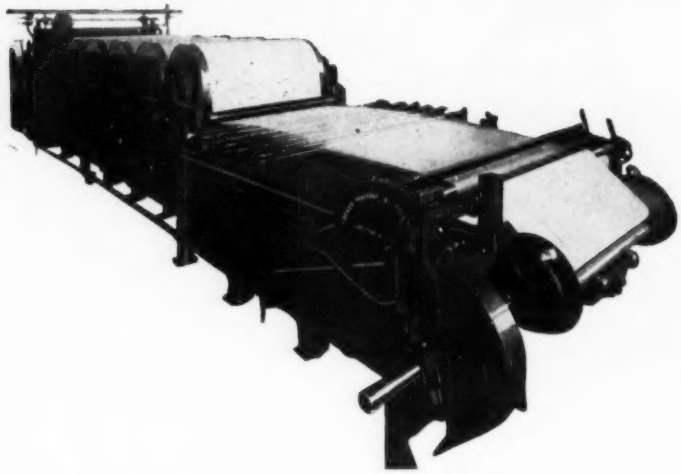
+ [illegible] operation of modern equipment
+ less down time of equipment
+ quick, easy repair . . . rapid parts delivery

JAMES HUNTER MACHINE COMPANY

BUILT BY HUNTER . . . IT'S DEPENDABLE

JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS, MASS.

NORTH ADAMS, MASSACHUSETTS FOUNDED 1847



The Cocker 9-Cylinder High Speed Slasher for cotton, spuns, filaments, and other type yarns.

The Most Modern Slasher in America

1200 Pounds

Production

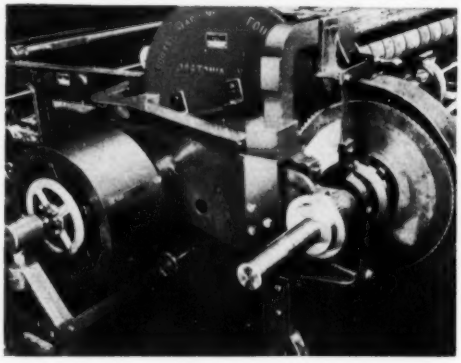
Per Hour

A new and exclusive feature on this slasher is the new type Cocker Friction, which produces hard loom beams and gives greater yardage of yarn per loom beam.

Another exclusive feature of this slasher is its Differential Friction Compensating Control which permits high speeds without heating of Friction. This is now and has always been the most modern slasher on the market . . . the first to use Rotary Packless Joints, Individual Traps on each Cylinder, Flexible Hose Connections, Stainless Steel Cylinders, Variable Speed DC Drive, and many other features which are now universally used.

It will pay you to investigate the many valuable features of this most modern of all slashers.

The New Cocker Friction



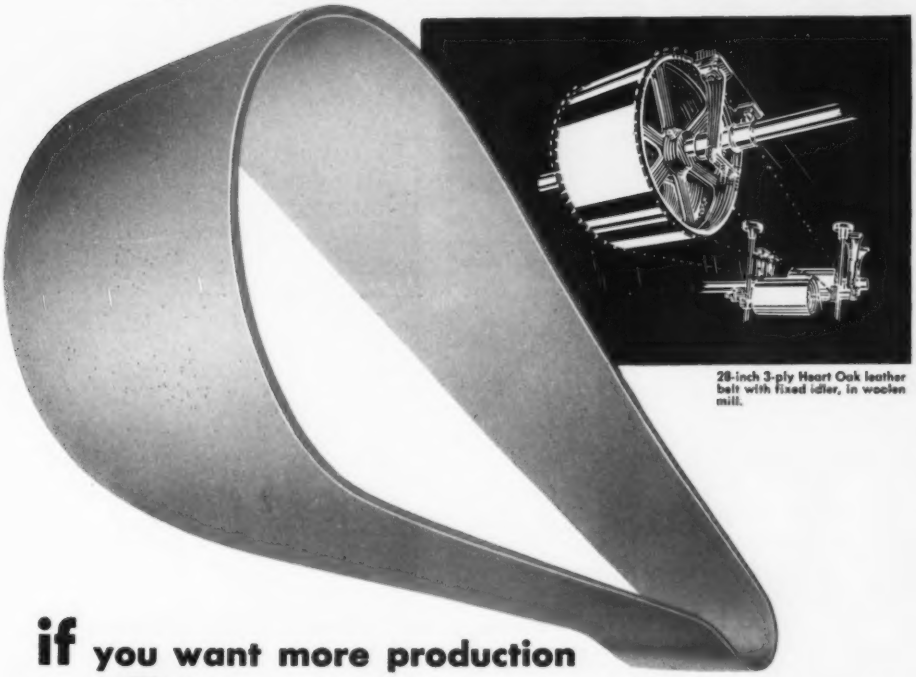
THE LEADER
COCKER
AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

For more information, write direct or use Reader Service post card.

your pulleys will drive your machines only as well as your belts drive your pulleys



28-inch 3-ply Heart Oak leather belt with fixed idler, in woolen mill.

if you want more production get GRATON AND KNIGHT leather belting for more production power

Get a Graton & Knight "Live Traction" Leather Belt — because it is engineered to transmit maximum uniform horsepower at correct speeds and sustained R.P.M. — with ample reserve for load peaks, and "fluid drive action" to absorb starting torque and load shocks.

For tough conditions, cross, shifter and idler drives, **HEART OAK** top grade center stock oak tannage. For short center, small pulley, cone pulley and serpentine *precision* drives, **RESEARCH®** premium quality. For ambient conditions (steam, oil, water, acid and alkali fumes) **SPARTAN®** combination tannage . . . Whatever your conditions, you'll get more production-power with Graton & Knight *Engineered* Leather Belting.

and *keep* your belts pulling for you

Stop belt slippage — prolong belt life with GRAKO® CLEAR Belt Dressing, result of 100 years experience in leather tanning and belt manufacture. Preserves and lubricates the fibres. Pint, quart and gallon cans — 5-gallon and 50-gallon drums. Send for circular.

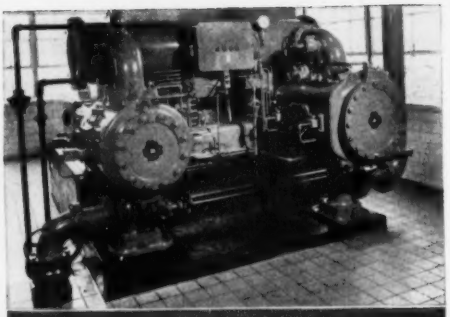
New Belting Catalog and Manual shows how to get more production-power with leather belting. Our representative will deliver your (free) copy upon request. GRATON & KNIGHT COMPANY, Worcester 4, Massachusetts.

second century G and K engineered leather belting for more production-power

GRATON AND KNIGHT Estab. 1851

USERS

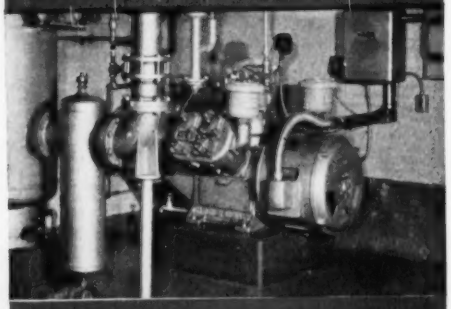
Master mechanic of a Pennsylvania processor tells of five years' experience with their HA. No service trouble whatsoever. In his opinion, the HA is "the best compressor made."



The Gardner-Denver HA Horizontal Two-Stage Air Compressor

TELL

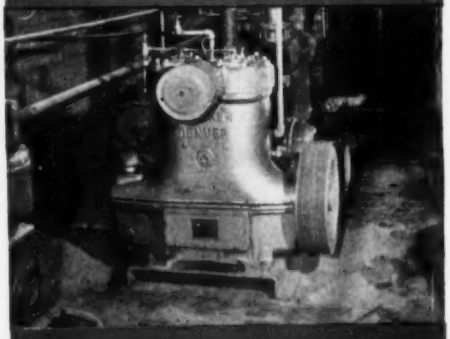
A Kansas City manufacturer has had a WB carrying his full air load almost 24 hours a day for several years. No overhaul required. Has replaced only a few small parts.



The Gardner-Denver WB Vertical Two-Stage Air Compressor

WHY

A manufacturer in Michigan reports he purchased an AA Compressor along with his present building. It's been supplying air for his operations for four years now, and hasn't been touched yet.



The Gardner-Denver AA Vertical Single-Stage Air Compressor

GARDNER-DENVER AIR COMPRESSORS

ARE SO OFTEN SELECTED FOR CONTINUOUS HEAVY-DUTY SERVICE IN MILL OR FACTORY. WRITE FOR DETAILS.

SINCE 1859 **GARDNER-DENVER**

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario
Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.; New Orleans, La.

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

For more information, write direct or use Reader Service post card.

an answer to the shortage of 18-8

REZISTAL 430

strong · corrosion-resistant · readily available

Gutters and downspouts are only one of many applications where Crucible Rezistal 430 Stainless Steel offers an adequate substitute for the 18-8 types of Stainless.

Rezistal 430's chromium content assures its resistance to an impressive list of industrial and natural corrosive media. In many of these, its performance approaches that of 18-8. Rezistal 430 also does well under many conditions involving high temperature oxidation and scaling. And what is most important, you can fabricate it by all the standard methods.

We will be glad to send you more information on the corrosion-resisting and mechanical properties of Rezistal 430, or to advise you on its suitability for your particular application. Write us today.

CRUCIBLE first name in special purpose steels

52 years of Fine steelmaking

REZISTAL 430 STAINLESS STEEL

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

STAINLESS • REX HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

TUFFER CYLINDER CLOTH

the finest Card Clothing Foundation on the market

Visit our booth at Sections 245–46, Southern Textile Exposition, Greenville, South Carolina, October 6–11

A Tuffer Tension Regulator and Motor Drive as used in the illustration greatly simplify the work of clothing a roll. It does a smoother job and saves much time and money.

One of the reasons our customers get such good results from TUFFER Card Clothing is because of the unique construction of the TUFFER Cylinder Cloth.

This foundation is made of four plies of specially designed fabrics carefully woven. They are bonded together with oilproof adhesive in our special way which gives you a strong foundation, yet pliable enough to promote the proper carding action of the wires when on your card.

TUFFER Cylinder Cloth was developed and patented by Howard Bros. after many years of research. A trial will convince you that it is the finest foundation available. Our complete line of foundations for card clothing includes wool face, felt face and rubber faces and specialties.

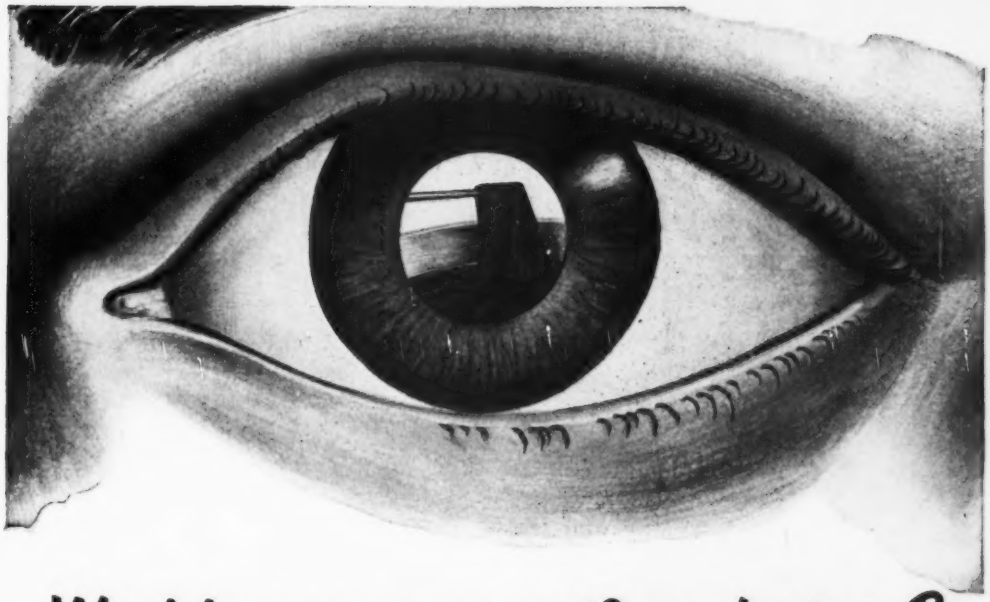
HOWARD BROS. MFG. CO. WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Georgia and Gastonia, N. C. **Branch:** Philadelphia, Pa.

Direct Representation in Canada

A-4

. . . IT PAYS TO SPECIFY TUFFER CARD CLOTHING



Want to see more uniform dyeing?

Many mills are improving their dyeing operations through the use of a faster, more effective Houghton wetting agent; have you *tried "Surfax" in your mill?*

Helping your dyes to penetrate swiftly and level out uniformly into hidden fibers is a job you can rely on one of our "Surfax" wetting agents to do.

The only problem is a simple one—to choose just the right "Surfax" to fit your particular requirements. It can pay off plenty if you let the Houghton Man help you test "Surfax" right in your dye rooms for the precise wetting and rewetting properties you need for best results.

Next time the Houghton Man calls on your mill, why not ask him to put our knowledge of surface active agents to work for you?

IT WILL PAY YOU TO KNOW THE HOUGHTON LINE OF *WET PROCESSING AGENTS* . . .

CERFAK { the trade name to specify when *detergency* is the chief factor you want.

SURFAX { selected whenever exceptionally good *wetting* and *re-wetting* power is needed.

HANDY HOUGHTON FOLDER helps you choose the agent with detergent and/or wetting properties for specific applications. Write for a copy, to E. F. Houghton & Co., Philadelphia 33, Pa.

. . . *products of*

E. F. HOUGHTON & CO.

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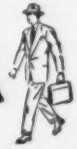
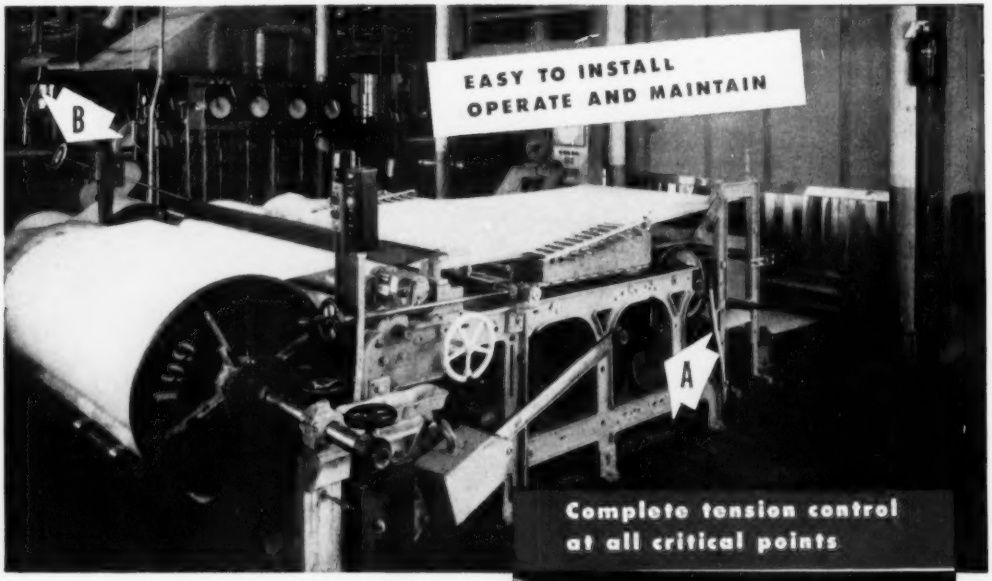


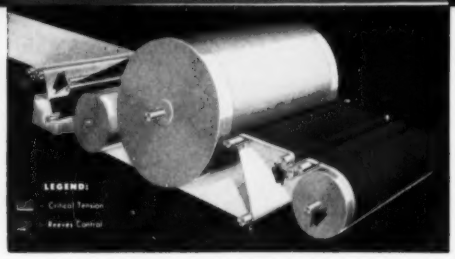
Ready to give you on-the-job service . . .

Build Better Beams with...

REEVES "Servo-Control" Slasher Drive



Arrow "A": The Complete Slasher Drive "nests" neatly beneath slasher head-end frame. Arrow "B": Handwheel—for setting Beam drive to maintain desired yard tension.



Add up all these quality-improving, money-saving advantages of REEVES "Servo-Control" Slasher Drive:

1 Finger-tip control from creep to run speeds by push button.

2 Smooth acceleration and deceleration through 15:1 speed range.

3 Quick, accurate, positive control of running speeds—without fluctuation—either manually or automatically tied in with moisture control.

4 Automatic, uniform tension regulation as beam builds.

5 Low initial cost; easily maintained by your mill mechanics; no complicated electrical hook-ups.

6 "Nests" under slasher head-end frame.

It will pay you to get the complete story right away. Send for bulletin No. W63c-S.

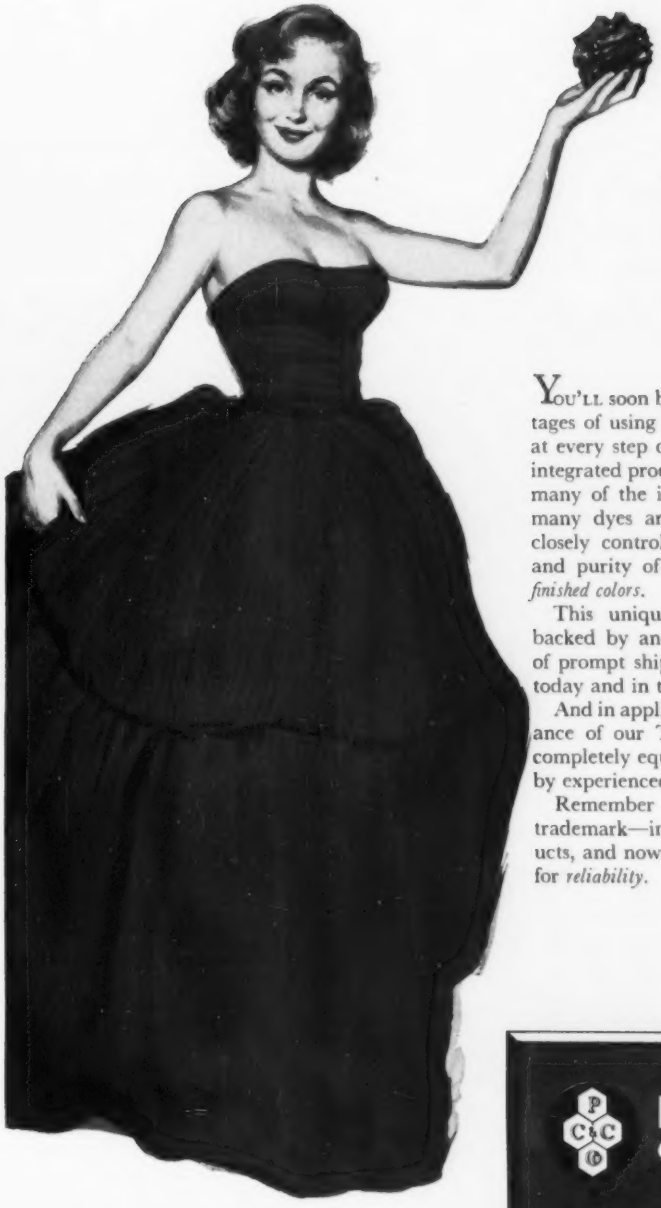
accurate · variable
REEVES *Speed Control*

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

Recognized leader in the specialized field of speed control engineering

Pittsburgh Dyes are *Quality-Controlled*

from COAL *to* *Color*



YOU'LL soon be able to enjoy the added advantages of using dyestuffs that are *quality controlled* at every step of production. For, as a basic and integrated producer of coal chemicals—including many of the intermediates from which a great many dyes are made—we're in a position to closely control and maintain the high quality and purity of Pittsburgh Dyestuffs *from coal to finished colors*.

This unique guarantee of quality will be backed by another basic advantage—assurance of prompt shipments and continuing supplies—today and in the *future*.

And in application, you can count on the assistance of our Technical Service Department—a completely equipped service organization staffed by experienced chemists and technicians.

Remember that the Pittsburgh name and trademark—in coal chemicals and related products, and now in *dyestuffs*—stands, above all else, for *reliability*.

DYE CHEMICALS DIVISION

PITTSBURGH
COKE & CHEMICAL CO.
Oliver Building · Pittsburgh 22, Pa.

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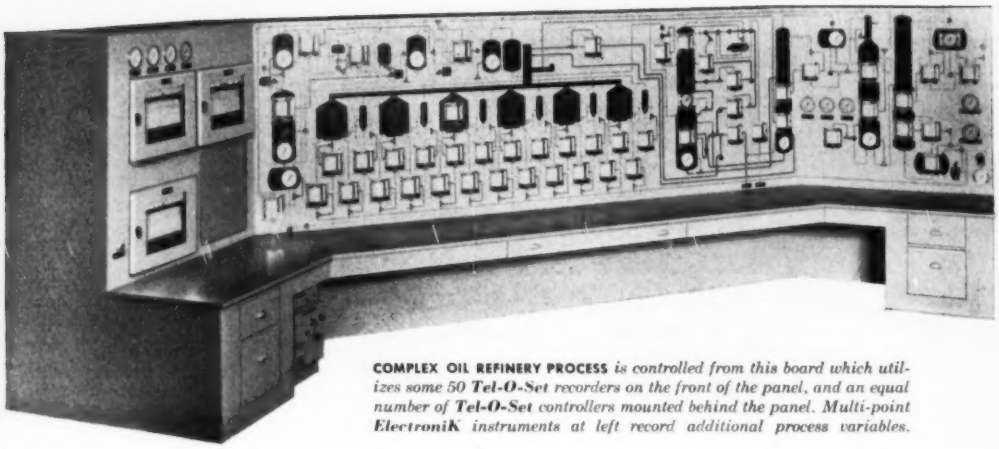
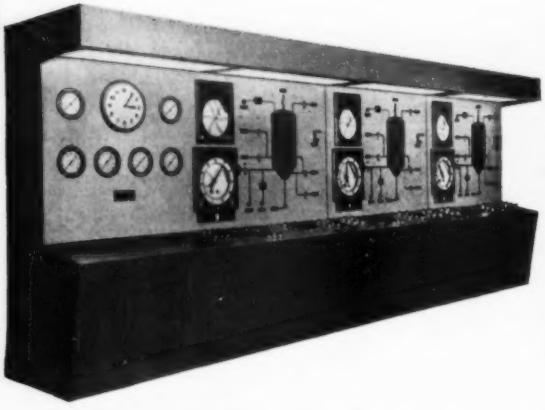
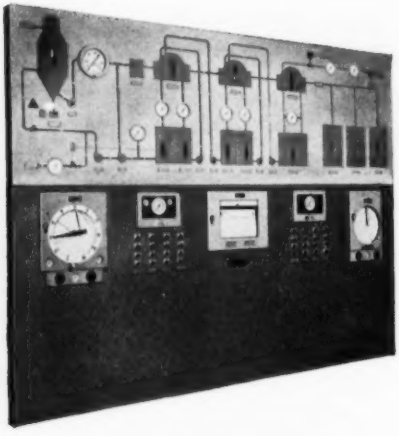


COMPLEX OIL REFINERY PROCESS *is controlled from this board which utilizes some 50* ***Tel-O-Set*** *recorders on the front of the panel, and an equal number of* ***Tel-O-Set*** *controllers mounted behind the panel. Multi-point* ***ElectroniK*** *instruments at left record additional process variables.*

Graphic Panels for Centralized Instrumentation...



CHEMICAL PLANT *panel combines the graphic theme with conventional size controlling instruments. It is built as a vapor-tight cubicle with a console front and overhanging light canopy.*



PAPER MILL *panel utilizes color to facilitate identification of process components . . . was designed by Honeywell engineers in close cooperation with the mill's engineers.*

PANEL PRODUCTION *in Honeywell's extensive shop devoted exclusively to panel work—utilizes the skills of highly trained specialists. All instruments, controllers, accessories, and back of panel wiring, and piping are carefully assembled—then subjected to rigorous tests to assure trouble-free installation and start-up when the panel reaches your plant.*

. . . *a progress report from Honeywell*

SHOWN here are just a few of the many graphic instrument panels which Honeywell has supplied for centralized control of a wide variety of industrial processes. Each one is the result of well-seasoned engineering know-how . . . based on extensive Honeywell experience . . . which combines all instruments and accessories into a closely integrated, efficient design.

Whether your process calls for a full graphic or semi-graphic panel . . . a conventional board . . . or a control cubicle . . . you can be sure of obtaining every feature of quality and performance that you need in a Honeywell panel.

In Honeywell's Panel Division, meticulous attention to engineering detail and highly developed construction techniques watch over every step—from blueprint to assembly to final test. Add to this engineering and manufacturing skill the availability of a complete line of conventional and miniature instruments, and the result is a control board . . . custom-fitted to *your* needs . . . that makes *Panels by Honeywell* synonymous with the best in centralized control.

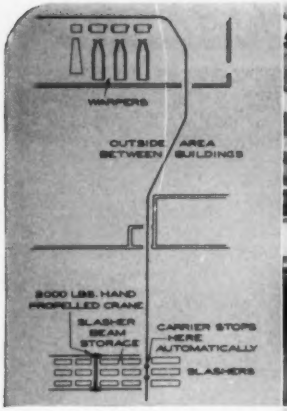
Our local engineering representative will be glad to discuss how graphic panels by Honeywell can bring new efficiency to your processes. Call him today . . . he is as near as your phone.

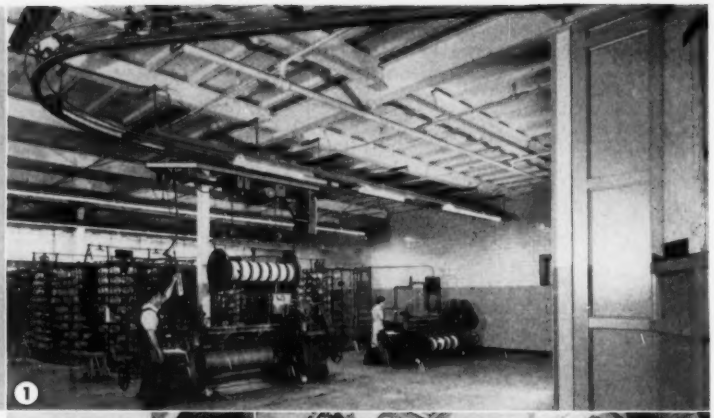
MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, 4509 Wayne Ave., Philadelphia 44, Penna.

MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS
First in Controls

● *Important Reference Data*

Write for your copy of Bulletin No. 85-20, "Centralized Instrumentation . . . unlimited."

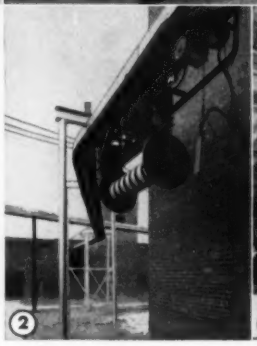


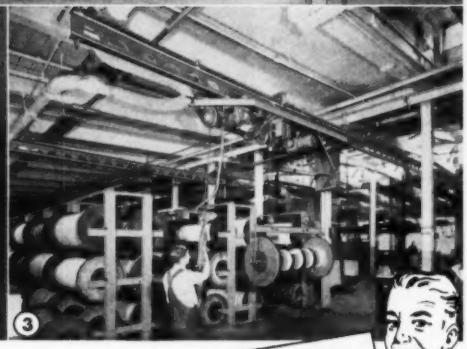


1 Beams are picked off these high speed warpers and dispatched on the overhead track directly to slashers automatically without anyone accompanying. Four warpers located to left are now in service instead of two when this photograph was taken.

2 Carrier traveling outside between buildings. Pointed guard on carrier opens building doors automatically.

3 Carrier stops automatically at this point between slashers and slasher beam storage. The beam of rayon is lowered by use of push-button pendant on carrier. A Cleveland Tramrail hand-propelled crane with electric hoist, in background, serves the efficient beam storage.





Simple Automatic Dispatch System

Because of efficiency made possible by a Cleveland Tramrail Automatic Dispatch System at the Mooresville Mills, Mooresville, N. C., for the delivery of warper beams from one building to slashers in another building, 80 man-hours are being saved weekly.

Beams are lifted by the Tramrail equipment off the warpers and delivered directly to the slashers or slasher beam storage. The same men operating other equipment can take care of the beam delivery. Practically no floor space is required for the automatic system because it operates on the ceiling where there is plenty of room. Inclement weather conditions never hold up beam delivery because workers never have to leave the buildings.

Most mills have costly handling jobs on which big savings can be made by use of Cleveland Tramrail automatic equipment. Why not let our engineers look through your plant and offer suggestions?

GET THIS BOOK!
BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
8476 East 287 Street, Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

TAKE ADVANTAGE OF STANDARD'S QUALITY and KNOW-HOW

FROM Bale TO Finished Product

Now, it's a case of better fabrics . . . faster. Standard's quality products and technical know-how can help you meet government standard specifications. Here's a list of Standard product uses from carding right on through to finishing.

For faster, better carding of cottons, rayons and synthetics, use Standapol and Stantex products.

For faster and better desizing, use Stantex Penetrator 40.

Improve your sulphuric acid sour by using Stantex Penetrator 40.

Use Turpenol XXC in kier boiling, continuous boiling, and jig boiling to save time, improve quality and lower costs.

In Rodney Hunt slack soapers . . . use Pyrotex, a detergent that cleans in any kind of water at any temperature.

Mercerize with Mercetex 756 at any concentration up to 60° Twaddle for perfect lubrication and penetration. Mercetex 756 stores well in reclaimed Caustic and the wetting speed is just right.

Dyebath . . . Vats, Sulphurs or Directs, use Penetrator 111 and Sanforol 50D. Stop your scum and dye spots, and get good penetration.

For dispersing, retarding and leveling light and dark shades on difficult government fabrics, use Retardine and Retardine D.

Clean up your dyed goods by using Pyrotex, Stantex NR-2, and Standapon. Excellent detergency, stability at boil, stability in acids or alkalis, and stability in soft or hard water. Easily rinsible. Economical to use.

Finishing and Sanforizing . . . Standapol 16 and Sanforol 50. They give the correct hand and softness, have excellent sewing characteristics, and they will not injure the most delicate skin.

Write today for complete details on the process and Standard product in which you are interested.

STANDARD CHEMICAL PRODUCTS, Inc.

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Manufacturer of: Pyrotex—Standapol*—Stanteosine—Retardine*—Standafin*—Stantex* *Reg. U. S. Pat. Off.

WHAT *Life-Lines* REALLY DELIVER IS MORE SERVICE...LESS SERVICING

New textile booklet

answers important motor and control application problems

You'll see answers to typical problems like these:

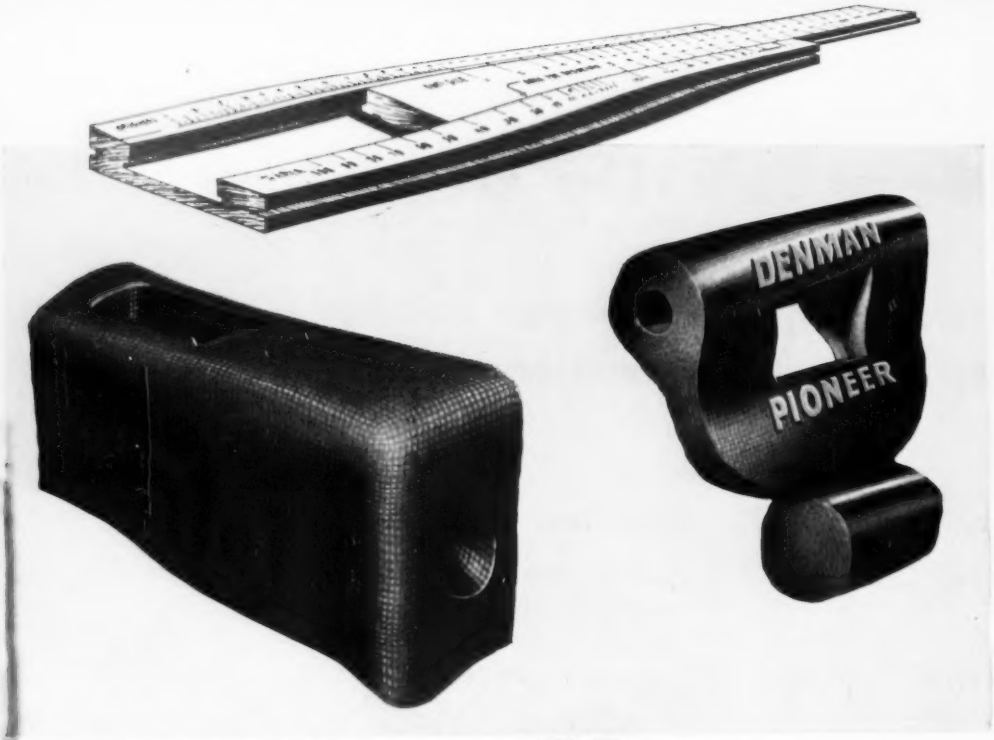
the problem of lint . . . of shock and vibration on looms . . . of overloads . . . of corrosion . . . of power consumption in weave rooms . . . of speed tension and control

In addition are discussions on lubrication, maintenance and installation . . . on centralized motor control. In fact, it is the purpose of this booklet to analyze major motor and control application problems and provide solutions.

Also included is information on Westinghouse motor and control equipment for the textile industry. You'll see why the pre-lubricated bearings of Life-Line are setting new standards for the industry . . . how exclusive features of the loom motor starters protect against lint fires. A comprehensive list of available literature with data is included, plus a postage-paid reply card for your convenience in ordering additional information.

Get the facts on the most complete and most advanced line of motors and controls available today. Ask your Westinghouse representative for your free copy of this new textile booklet "Motors and Controls in the Textile Industry", B-5422, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-21700



Manufactured by The Denman Tire and Rubber Company

Mill men who have written the specifications for Denman Pioneer Pickers measure by this standard: "Lowest Cost Per Loom Per Year".

To assure minimum cost per loom a picker must be tough — but not at the sacrifice of other loom parts. Denman pickers are built to the tested degree of hardness which gives greatest "wearability" *without* damage to picker, picker stick, or shuttle.

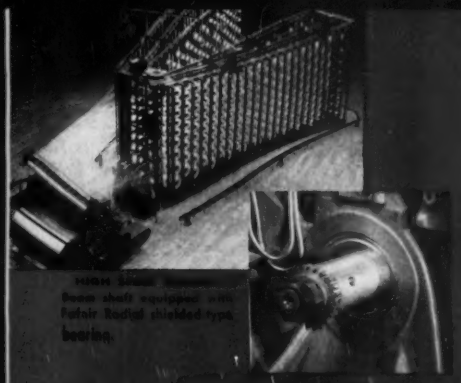
The performance of Denman Pickers on your looms will convince you that *correct hardness,* plus Denman's superior resiliency and absolute uniformity, absorb the shock of heavy shuttle blows at less total expense per loom.

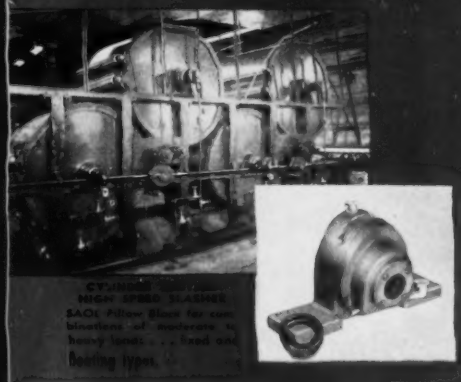
How do you measure picker performance?

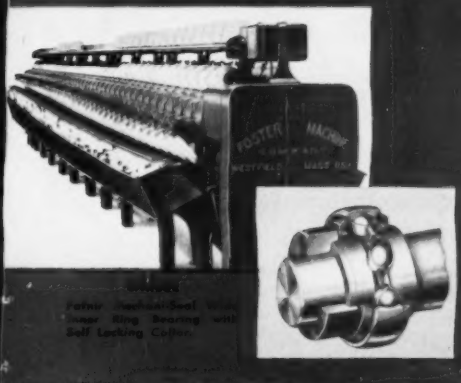
Exclusive Sales Representative

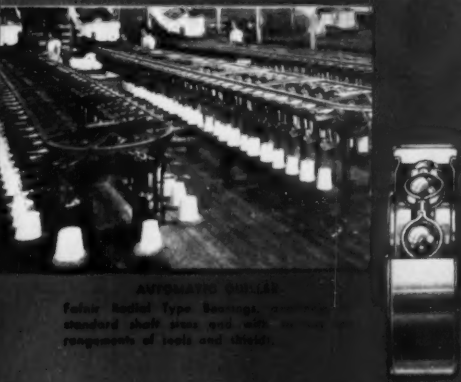
THE TERRELL MACHINE COMPANY, Inc.

CHARLOTTE, NORTH CAROLINA









TURNING POINTS to closer quality control

in Winding, Warping and Slashing

Cleaner, faster production and lower maintenance costs aren't the only advantages of ball-bearing-equipped winding, warping and slashing machines. Better quality control is "in the cards" too. For example, on Fafnir-equipped high speed winders, records show more uniform package density . . . on warpers, even length warps are assured. On high speed slashers, there's less strain on the warp when *cylinders and creels are* mounted on Fafnir Ball Bearings.

There's a Fafnir Ball Bearing or Complete "Packaged" Unit for every turning point, for every standard textile machine, for every textile operation from opening to finishing. Each of these bearings is the most advanced design, such as the Fafnir Wide Inner Ring construction with self-locking collar . . . easiest of all bearings to install. Check all the advantages . . . send for descriptive catalog. The Fafnir Bearing Company, New Britain, Connecticut.

Other FAFNIR UNITS for Winding, Warping and Slashing

- Cylinder Unit for Rotary Steam Joint Adaptation . . . Cohoes Slasher
- Cylinder Unit for Rotary Steam Joint Adaptation . . . Saco-Lowell Slasher
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- Pressure Roll Unit
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BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

Two "Problem" Wastes Become a Neutral Effluent

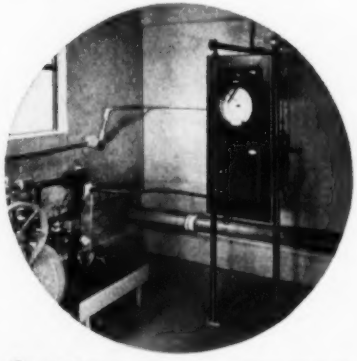
...under Foxboro pH Control

Equalization tanks store acids and alkalies before they are introduced into mixing basin at Mansfield Bleachery.

At the Mansfield Bleachery, acid and alkali plant wastes are collected in separate equalization tanks. No mixing problem exists, however, since Foxboro pH Control permits combining the two wastes in correct proportions before disposal . . . and a neutral effluent is constantly maintained.

The complete reliability of this Foxboro Control System is evidenced by the fact that biological growths remain hale and hearty when the effluent is further treated on trickling filters. Since the system was installed, biological activity has never been impaired by unbalanced pH.

This is but one example of many industrial waste problems which are successfully solved with Foxboro Control. Whatever your waste disposal problem, Foxboro Instruments properly applied can be counted on to reduce both initial investment and operating costs. Talk it over with your nearest Foxboro representative, or write **The Foxboro Company, 848 Neponset Ave., Foxboro, Mass., U.S.A.**



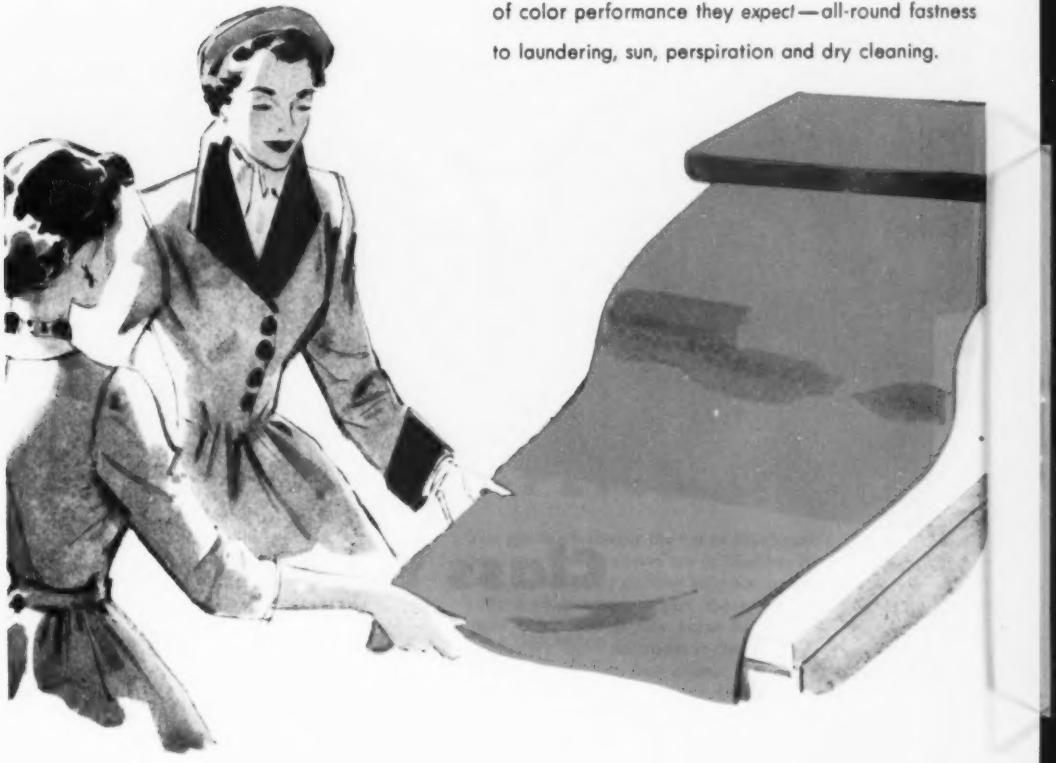
Foxboro pH Controller in pump house at Mansfield Bleachery regulates flows into the mixing basin.

FOXBORO Reg U S Pat Off. **pH CONTROLLERS**

The COLOR that's bought by this up-to-date wife...

Should be COLOR that lasts for the fabric's whole life!

DU PONT VAT DYES give today's shoppers the kind of color performance they expect—all-round fastness to laundering, sun, perspiration and dry cleaning.



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Drapery and slipcover materials are just one application for Du Pont PONSOL* and LEUCOSOL* (anthraquinone-type dyes). Our technical staff will work with you in your choice and application of these uniform, deep-penetrating vat colors. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

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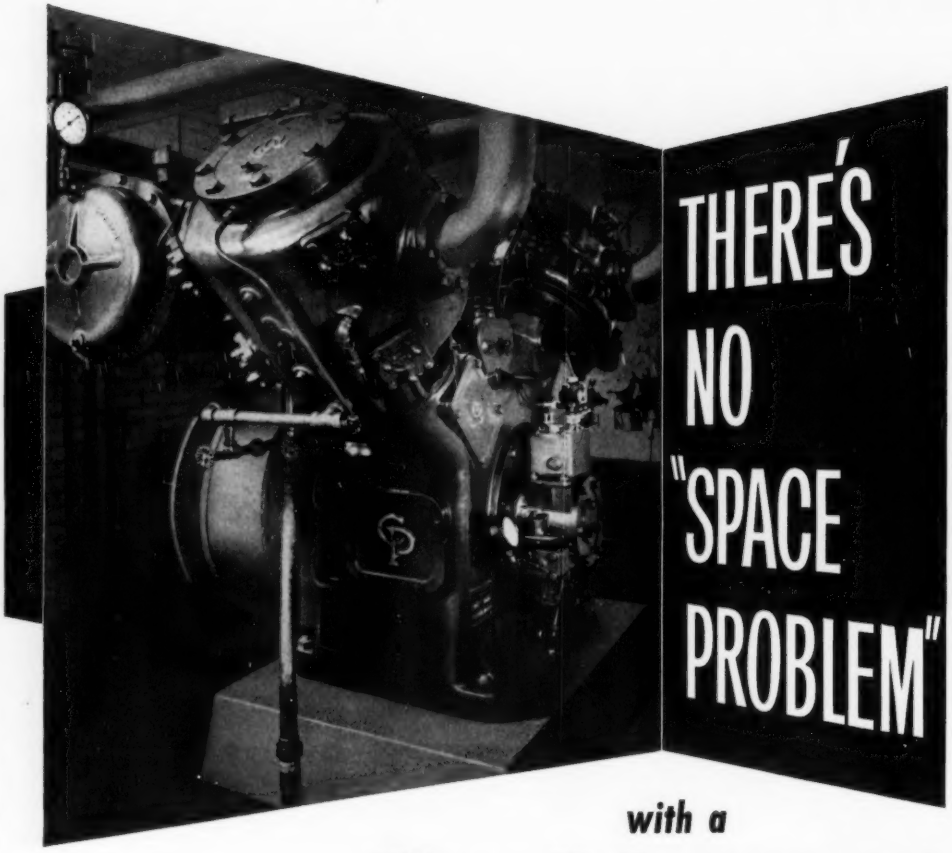

with a

Class Y Compressor

— and only a simple foundation is needed for this exceedingly compact unit.

Shipped intact as a "package" requiring only external connections, the Class Y is easy and inexpensive to install, and may readily be moved, intact, to another location if desired.

Yet it is built for continuous, heavy-duty service, with CP features that assure high efficiency and low maintenance . . . large area Simplate valves . . . multi-step capacity regulation . . . effective inter-cooling . . . precision bearings . . . force-feed lubrication.

In sizes from 75 hp. to 250 hp., 500 cfm to 1663 cfm; with direct-connected, flange-mounted synchronous or squirrel cage motor. Also available with belted and coupled motors.

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Fiftieth ANNIVERSARY

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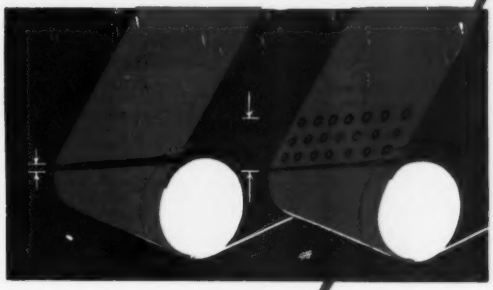
"RUBBER RIVETS"

Exclusive in Manhattan Endless Belts



ELIMINATE SPLICE FAILURES

You get much longer life out of Manhattan's Endless Flat Belts because of our exclusive use of "Rubber Rivets" in splicing the cover. In ordinary endless belts the stress of flexing over small pulleys concentrates where the cover is spliced. Failures of these belts start at this point of greatest weakness • With Manhattan Belts the stress is dissipated over a wide area. The difference is illustrated above. During manufacture "Rubber Rivets" are inserted at pre-determined points through the cover. Vulcanizing then makes these rivets an integral part of the belt, eliminating possibility of separating • This is the "Extensible-Tip" exclusive with Manhattan. This plus feature in all Manhattan Endless Belts gives you longer belt life and lower belt cost . . . typical of the R/M engineering that also saves you money in hose, V-belts and conveyor belts • *Ask your R/M distributor for your copy of our "Exclusive Features" book.*

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Chlorine is Tamer with these CRANE Valves

. . . Designed to handle water-free chlorine, gas or liquid, up to 300°F.

Your best valves for handling chlorine are those made expressly for this service. It's too tough for ordinary equipment.

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You'll operate more safely, efficiently, and dependably with these Crane Chlorine Valves. Their rugged forged steel construction gives you protection against internal and external shock. You'll have freedom from bonnet joint leakage with their strong Crane bolted design.

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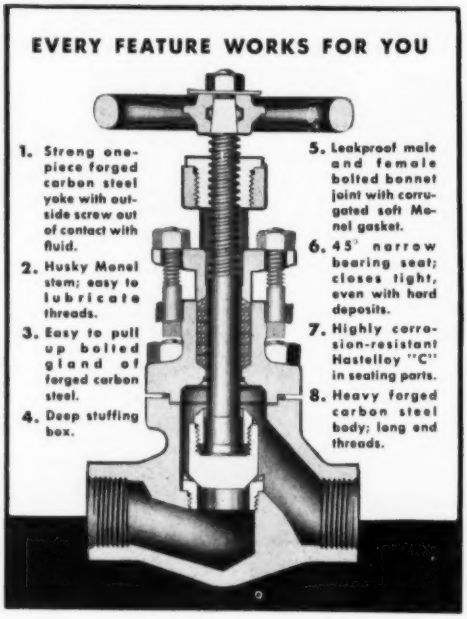
You'll be equipped for highest resistance to corrosion with the Hastelloy "C" disc and seat rings, and the Monel stem. A corrugated soft Monel gasket prevents corrosion and leakage at the bonnet joint.

Literature Free on Request

The many refinements of Crane Chlorine Valves assure not only more efficient chlorine control, but important savings on valve maintenance and replacement costs. Get the complete facts in Circular AD-1608. Write or ask your Crane Representative for a copy.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1. Strong one-piece forged carbon steel yoke with outside screw out of contact with fluid.
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7. Highly corrosion-resistant Hastelloy "C" in seating parts.
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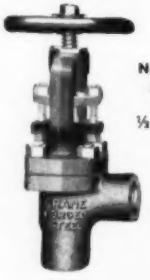
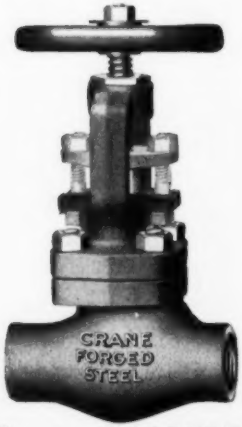


No. 1645 Angle Sizes ½ to 2 in.

No. 1644 Globe Sizes ½ to 2 in.



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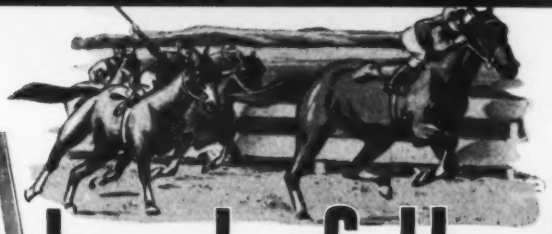
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING



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Louis Allis Drip-Proof motors combine with every detail of their pleasing appearance—Quality—Performance—and Stamina. They have the highest type of craftsmanship in their manufacture, ample factors of safety in their rugged design and long trouble-free operating life.

For over 50 years, The Louis Allis Co. has designed and manufactured electric motors to fulfill the changing requirements of an expanding American Industry. As a result, we can offer one of, if not the largest selection of types and sizes of special and standard motors available today. They are available in a complete line — from ½ HP to 1000 HP.

For quick, dependable service, contact your nearest Louis Allis Sales Engineer.

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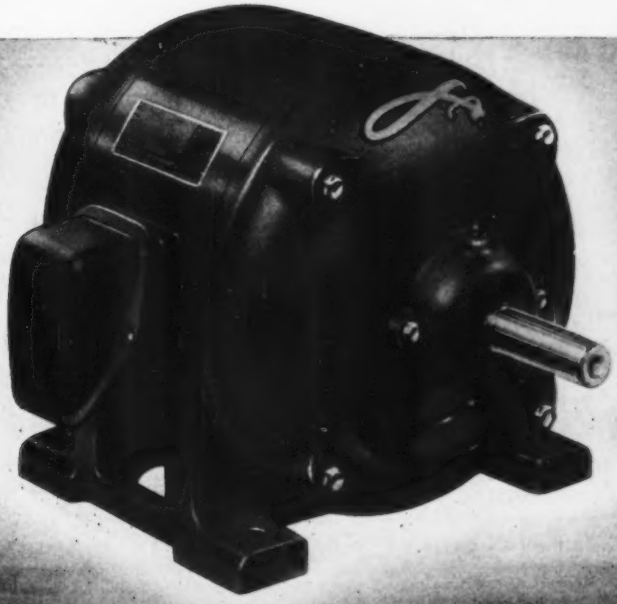

EVERY **SEALMASTER** BEARING

Pre-Lubricated

FOR A LONG STRETCH OF SERVICE

1. PERMANENTLY SEALED
Felt-lined steel flinger, rotating in labyrinth, excludes dirt and retains proper amount of lubricant.

2. SELF-ALIGNING
Bearing unit, with seals independent of housing, can align itself in any direction without seal distortion.

3. PRE-LUBRICATED
Before shipment from the SealMaster factory, the bearing chamber is filled with proper amount of lubricant.

4. NO HOUSING WEAR
Patented locking pin and dimple prevent rotation of outer race in housing. This eliminates housing wear, permits shaft alignment and positions unit for relubrication.

5. FLOATING RETAINER
Ball retainer is designed to float on ground inner surface of outer race. Traps lubricant, prevents churning.

6. HOUSING DESIGN
SealMaster's cast housings combine rigid, one-piece construction with smooth streamlined appearance.

Bearing maintenance at low cost is a feature worth designing into your machines. In SEALMASTERS the lubricant is sealed-in at the factory. Thus, SEALMASTER Ball Bearing Units assure smooth operation, and long life—with reduced power consumption.

Ask for Catalog 845—for complete data on SEALMASTER *Bearings.*

SEALMASTER BEARINGS

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A DIVISION OF STEPHENS-ADAMSON MFG. CO.

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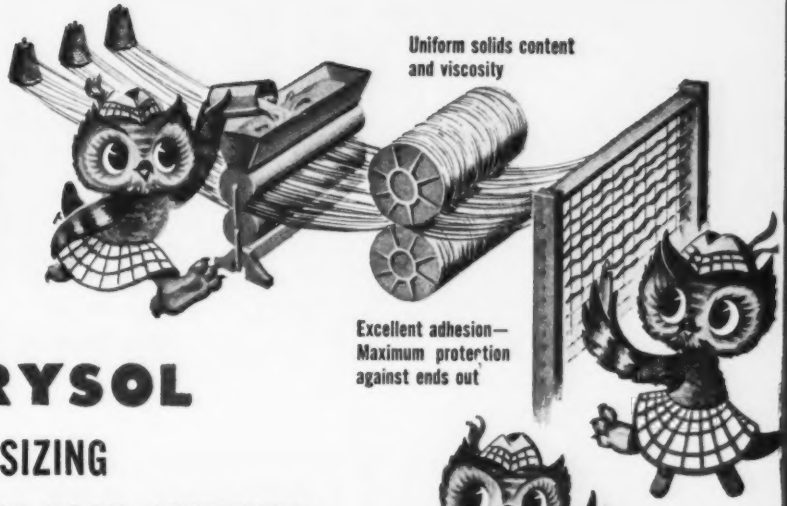

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NYLON SIZING ASSURES GOOD ADHESION— PREVENTS ENDS OUT

For warp sizing nylon—
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ACRYSOL sizes give essential protection to nylon weaving or tricot knitting yarns at lowest cost. Be wise and thrifty—write for full details of these polyacrylic acid sizes.

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ACRYSOL *is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.*

here's why... MORE and MORE mills are turning to micarta®...

because of these qualities . . .

Saves Weight, weighs half as much as aluminum.
Resists Compression, pound for pound greater than steel.
Resists Impact, absorbs and withstands severe shock.
Withstands Vibration, cushions repeated shock without effect.
Insulates like mica but greater flexibility.
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Resists Moisture, in fact, water is its best lubricant.
Wears Slowly, Evenly, in many cases more slowly than metal.
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Laminated MICARTA includes standard structural shapes: plates, sheets, angles, channels, rods, tubes and zees. Occasionally this class includes simple molded shapes.

Molded MICARTA is the choice for complicated shapes, large production quantities of either simple or complicated shapes, or for certain properties better obtainable in form molding.

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MICARTA is a tough and resilient basic material that welcomes comparison with other basic materials. This versatile plastic outlasts wood and metal in many punishing applications. Investigate MICARTA and you'll find it the economical solution to tough production problems.

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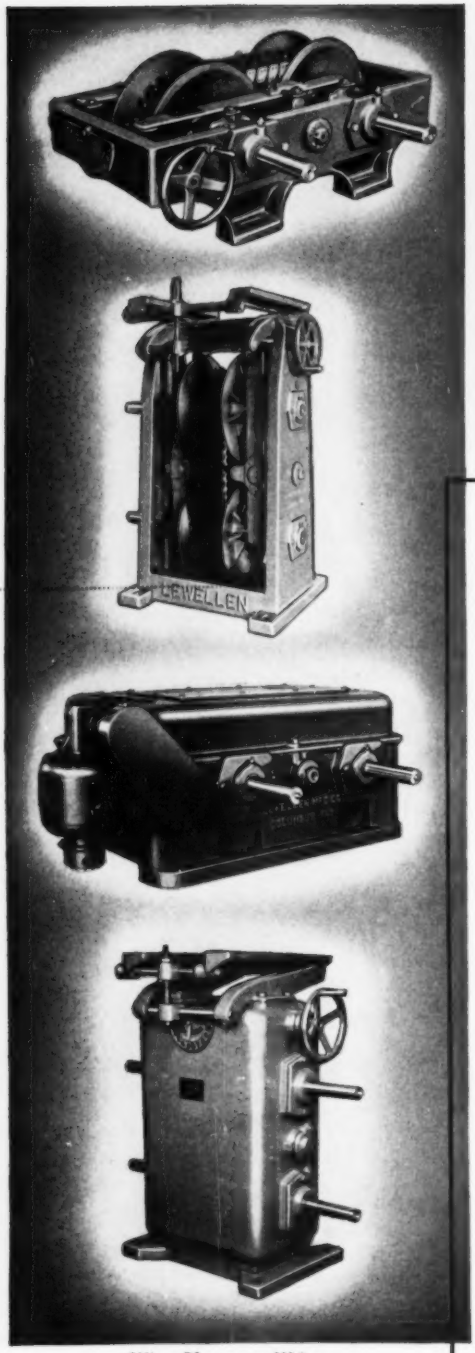

FOR SPEED CONTROL AT ITS BEST

Look to Lewellen

CONTROLS to meet your need

MANUAL CONTROL—conveniently available to the operator.

HANDWHEEL, at the Transmission, furnished as standard equipment. Used when Transmission is mounted on floor, convenient to operator.

HANDCRANK, HANDCHAIN or SPROCKET & CHAIN. Furnished as standard equipment, if specified. Used when Transmission is mounted on ceiling, or beyond reach of operator.

PUSH-BUTTON. Control from one or more remote stations. Reversible pilot motor turns shifting screw instead of hand control. Highly important when operator must remain in a position away from Transmission.

AUTOMATIC CONTROL—sensitive, responsive, positive . . . by-passing operator. Never the same in detail—always designed to meet a particular problem.

Installations now operating:

Automatic controls reeling cold rolled steel under constant tension.

Belt machine winding belting under any pre-determined stretch and constant tension.

Winding paper, wire, etc. under constant tension.

Constant cutting speed on veneer lathes, compensating for changing cutting diameters.

Controls have signal lights showing conditions at all times.

(Illustrated are the four basic Lewellen Transmission styles—open or closed; horizontal or vertical.)

Wire, Phone, or Write

LEWELLEN MANUFACTURING CO.
COLUMBUS, IND.

"What other textile machine will give you a 33% return on your investment"

- Eliminates costly steps in preparation of sliver for roving
- Produces better, more evenly blended sliver in greater volume
- Reduces waste
- Uses either combed sliver or ball top
- Applicable to French, Bradford, or American systems

THE ABOVE STATEMENT is not ours. It was made by a textile executive in answer to our inquiry about the Pin Drafter's performance in his mill. A substantial savings on waste and labor costs have been attributed to the Warner & Swaseys in this mill's modernized combing and drawing departments.

But this is not an exceptional case. Many mill managers tell us that these machines are paying for themselves in 18 to 36 months.

BRANCH OFFICES:
6910 Market Street, Philadelphia, Pa. • Candler Building, Atlanta, Ga.
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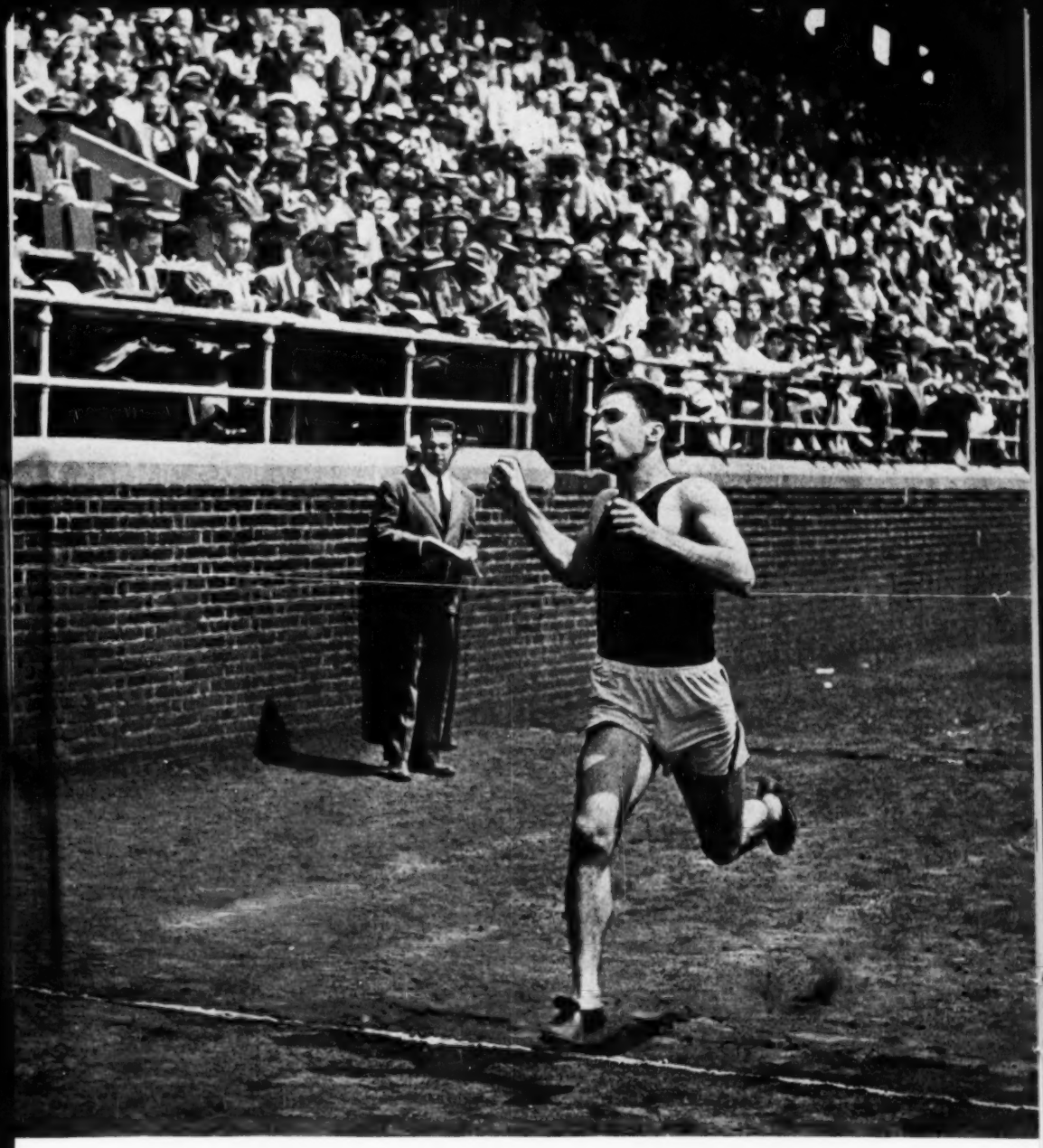
WARNER & SWASEY
TEXTILE MACHINERY DIVISION

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY



He's a great runner—BUT

How does he compare with Gil Dodds?

Rev. Gilbert Dodds holds the American record for the one-mile run on an indoor track. His record set in 1948 is 4 minutes 5.3 seconds.

In everything we do, we make comparisons . . . In Full-Fashioned Knitting, the one standard for comparison is the 30-section "Reading" Machine with a production of 14 to 16 dozen pairs of superior quality stockings in 8 hours. Simple and flexible in operation. 51-gauge, 60-gauge.

TEXTILE MACHINE WORKS • READING, PENNA.

Aid or Trade?
A CRISIS AHEAD

A crisis in the foreign trade relations of the United States is in the offing. It is a crisis caused by:

1. Efforts of producers in friendly nations to earn more dollars by increasing exports to the United States, and
2. Efforts of industries in the United States which would be hurt by competition from these imports to keep them out.

This crisis is a threat to the effectiveness of American leadership in the crucial effort to build the nations of the free world into a strong and unified group. It is the purpose of this editorial to advocate a constructive approach to the difficult situation that is developing.

Background of the Crisis

Most countries in the free world—with American aid—have managed to push their outputs well above prewar levels. As they have done so, they have been urged by our highest government officials to increase their exports to us. Sales in our market enable these countries to earn dollars which they use in turn to buy the products of America's farms and factories. Thus, as they become self-supporting, the need of American aid is reduced.

But as these efforts to export more to the United States have promised increasing success, competitive American producers have become increasingly alarmed about what that success might do to them. Consequently, they are seeking more protection—by appeals to the U. S. Tariff Commission to recommend higher import duties and by appeals to Congress for new laws to discourage imports.

Our Friends Protest

A year ago Congress answered one of these appeals by imposing a quota on imports of dairy products. Now, among many other legislative proposals being strenuously pressed is a move to extend the scope of "Buy American" legislation. A year ago the U. S. Tariff Commission had only four petitions for increased import duties on its docket. Since then fourteen more petitions have been filed and others are definitely on the way.

Faced by these mounting efforts to block the sale of their products in the American market, no less than eleven friendly nations, including Great Britain, France, Italy, Canada, the Netherlands, Switzerland and Denmark, have filed protests with our State Department. Through many of the protests runs one refrain. Although stated in diplomatic language, it might be correctly paraphrased to say: *"In*

sending us aid you have made it very clear that you want us to get on a self-supporting basis at the earliest possible moment. But, when we begin to make headway in that direction by trying to sell you more of the things we are equipped to produce, you start closing your market to us." The threat of European resentment against the United States being stirred up by this argument is obviously great.

At the same time there exist grounds for special resentment in the United States against certain prospective imports of European manufactured goods – those of machine tools, for example. In part these will be produced with machinery that has been sent to Europe as part of our economic aid program. With absolutely no diplomatic language involved, the argument, which will be extended much farther than the facts would justify, will run: "*We gave those people the equipment that they now use to cut our throats!*" This line of argument will find response among workers as well as employers in industries faced by more competition from imports. Labor, too, is keen for protection against more foreign competition.

Aid or Trade?

As between continuing direct economic aid to Europe or accepting the imports that would make those countries self-supporting, some would prefer to continue the aid program. They argue that the tax machinery of the federal government can spread the burden of aid broadly, while we have no comparable machinery that can cushion the shock to individual industries, firms and communities that may result from stepped-up imports of competitive products.

As we see it, this position is untenable. It would make rubbish of our Atlantic Charter promise ". . . to further the enjoyment by all States, great or small, victor or vanquished, of access, on equal terms, to the trade and to the raw materials of the world which are needed for their economic prosperity." It would be an admission that, for all our profession of faith in competition and our opposition to European cartels, we really don't believe in competition.

U. S. Self-Interest

The people of this country have invested billions of dollars and seven years of hard work in the attempt to put our allies on a self-supporting basis. If we keep their goods out by raising trade barriers, we are directly defeating our own purposes.

Also, in moving to protect some groups of American producers we should be hurting others. For many American producers the export market, which this year will take about $14 billion of civilian goods, spells the difference between operating at capacity and closing down 25% of their facilities. When we discourage imports we cut off dollar earnings by other nations which are spent here to keep some of our factories and farms going.

At the same time, it must be recognized that certain American industries and their capacity to maintain employment will be hurt by increased imports. Hence it becomes critically important for the United States to formulate a national program designed to help these industries and communities take up the shock.

There is no neat and simple prescription by which this can be done, but several possibilities have been suggested. One on which there is general agreement is that tariff reductions should be gradual. To cushion their impact, the government might well give preference on defense orders to industries and areas adversely affected by an increased volume of imports. Direct assistance to workers and companies in shifting to different lines of business may be worth consideration.

These are by no means all the possibilities. They may not even be the best. But they do serve to suggest the necessity for flexibility and imagination in dealing with the growing crisis in trade relations. *Our ingenuity in developing new ideas to meet this crisis may well be a decisive factor in our effort to weld the free nations into a strong and durable alliance.*

McGraw-Hill Publishing Company, Inc.

OVER THE BUSY DESK of Manager Cliff Hall passed reams of paper: plans, specifications, quotations, orders. End result, after four years of working at plantwide modernization, was a one-third reduction in labor costs.

A Small Yarn Mill Cut LABOR COSTS 33%

Clifford L. Hall, manager of Danville Yarn Mills, had one thing in mind when he started modernizing 4 yr. ago: to make good yarn at less cost. To do it, he—

- **Put in some new machinery**
- **Reconditioned the old machines he kept**
- **Changed workloads to meet new conditions**
- **Shared the gains with his workers**

By P. M. THOMAS, Editor, TEXTILE WORLD

DANVILLE YARN MILL, Bon Air, Ala., has reduced its over-all labor costs 32.88%.

In 1949, the mill produced cotton yarns at an average labor cost of 11.77¢ per lb. Between that time and now, wage increases amounting to 23% have been given; but today the mill's labor cost for producing a pound of yarn averages 9.72¢, based on the same yarn numbers.

"We worked the mill over from one end to the other," Manager Clifford L. Hall said. "In the last four years, we've either replaced or reworked every machine we had."

The accompanying pictures show something of what Danville Yarn Mills is now like physically.

The mill is 43 yr. old. During that time—and including the textile-slump year 1951-52—it has not run any short time. Its carded hosiery yarns, ranging from 8s through 26s, are sold on the open market in competition with sales-yarn mills all over the country.

"One reason for our success," Mr. Hall said, "is our size. We have 14,688 spinning spindles. We find that to be a good size for economical operation. We can keep our jobs laid out and our production balanced so that we don't have the losses and production leaks a big mill can't avoid.

"Another advantage of that size is that supervision is more efficient and more effective. In big mills, supervisors have so much responsibility that they can't possibly keep their eyes on all important details."

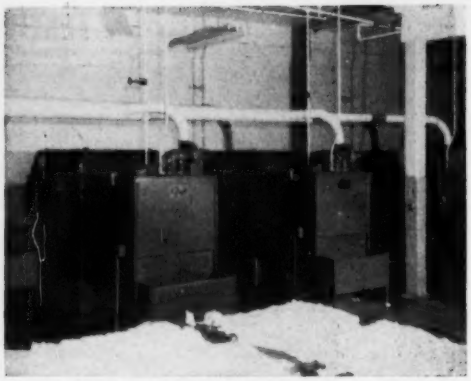
Danville Yarn Mills is owned by Danville Knitting Mills, Danville, Va., of which C. B. Conway is president. Management of the mill is carried out on the spot by the men directly responsible for production. For example, during the 4-yr. modernization program just completed, selection and purchase of the machinery, equipment, and services were made by the resident management of the mill with the full cooperation of Mr. Conway. Operating and policy decisions are also made by Mr. Hall and the key men assisting him.

Located in the rolling foothills of an agricultural area, Danville Yarn Mills followed personnel practices formulated to accomplish two purposes: (1) to operate the mill efficiently, and (2) to permit workers to retain as far as possible their generations-old small-farmer independence and customs.

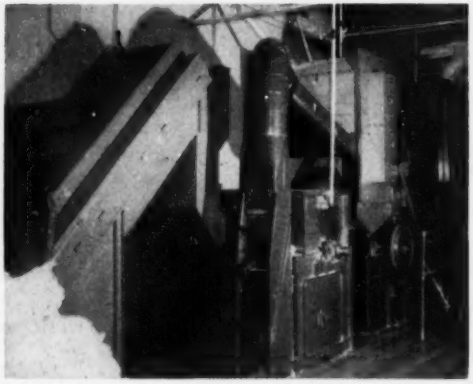
The mill has a small village to house some of its workers; but most of the employees live on plots of forty-acres-and-a-house rented from the company for $200 a year or on small farms they own or rent independently of the company. The result is that the community has an agricultural-industrial, rather than a strictly industrial, atmosphere.

Practically every employee, from top

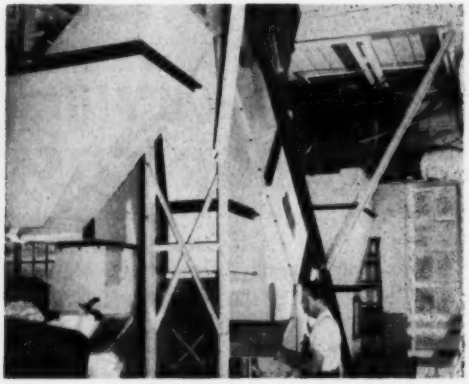
COTTON used is 1 1/32-in. SM grown in Alabama and Georgia, with a little coming from Tennessee and the Delta. Only flat bales are used.



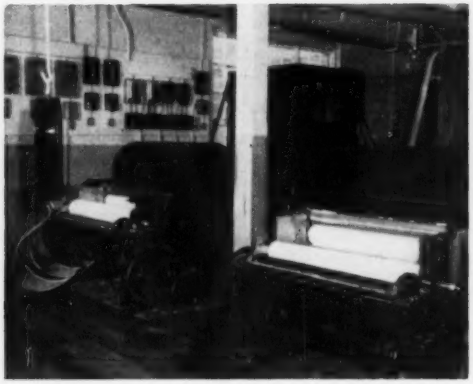
FOUR BLENDING FEEDERS, Saco-Lowell F-7s, are the start of the opening line. Only one man is needed to run the feeders and the two pickers.



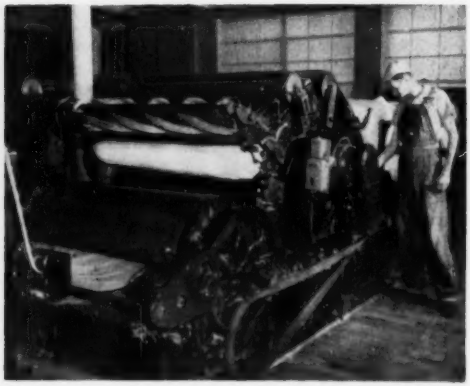
FROM THE FEEDERS, cotton goes to a Superior cleaner, Centrif-Air machine, two No. 11 condensers and No. 12 cleaners, and to a third No. 11 that feeds to a gyrator.



THE LUMMUS GYRATOR receives cotton from the third No. 11 condenser and feeds the two picker hoppers. All machinery in the opening room is automatic and synchronized with the picker.

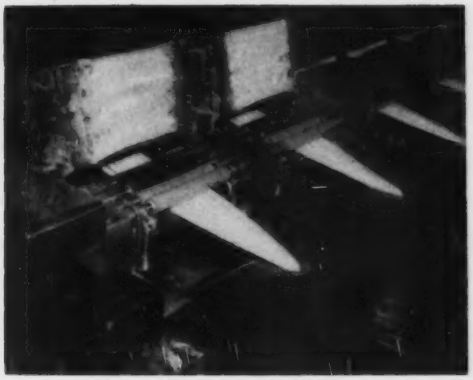


PICKERS have a three-blade, two-blade, and Kirschner beater, all running at 1,050 rpm. They deliver 45-in. 14-oz. laps 45 yd. long and average two set-backs per 8 hr.

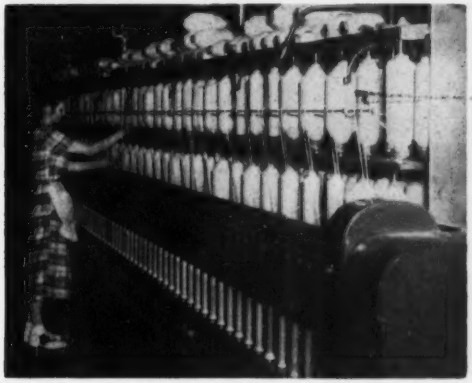


CARDS were completely reconditioned. Continuous stripping and ball bearings were installed. Two tenders run the 72 cards, and one grinder takes care of the cards and opening and picking machines.

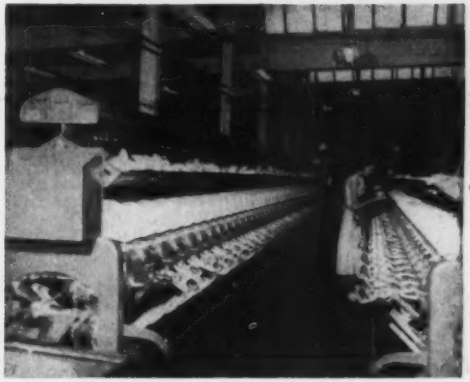
A NEW WING was built to house 21 additional cards so that the carding rate could be cut from 12 to 8½ lb. per hr. Waste percentages: opening, picking motes, 4.0%; card fly, 2.1%; strips, 3.06%.



MEDLEY'S FOUR-ROLL DRAWING, with two metallic and two cushion rolls, is used for the 36 breaker and 36 finisher deliveries. Speed is 121 ft. per min.



SPINNING FRAMES were equipped with ball-bearing tape pulleys and head-end chain drives. Traverses lengthening put 58% more yarn on the bobbin. On 16s to 26s, ring size was increased to 2 in. from 1¾ in.

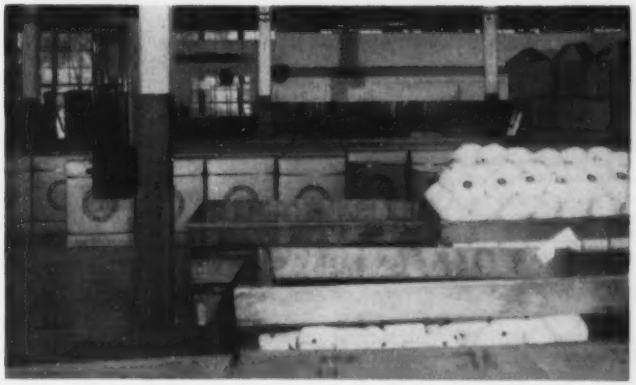


WINDERS—seven cone and one tube—run at 600 ypm. On 8s, 10s, and 12s, each operator runs 40 spindles. On numbers above 12s, each operator runs 50 spindles.

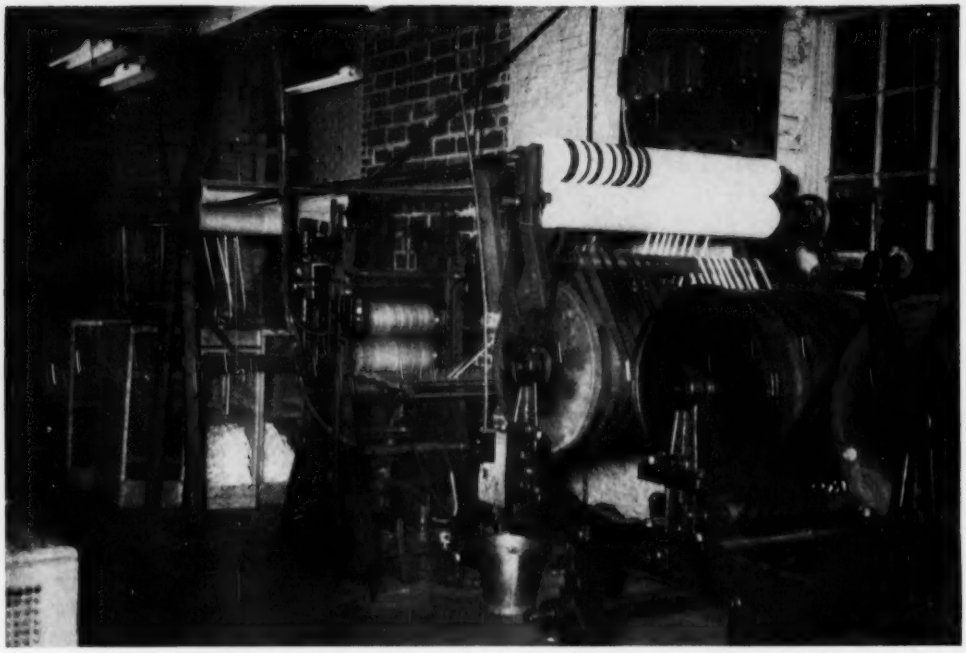
man Cliff Hall on down, is a native of the area. The majority of the workers have never worked anywhere else, or been employed in another mill.

Wages are a little higher than the going wage levels in the area, and a share of the benefits of labor-cost reductions is passed on to the workers.

For example, one change made in the modernization program was to increase the spinning traverse from 7¼ in. to 9 in. The larger spinning package cut down on the creeling required to keep the Foster winders running, and 14 winder tenders wound the same amount of yarn 21 tenders had wound before. The displaced winder tenders were given other jobs, and 25% of the labor costs saved by the traverse was passed on to the workers in the form of a wage raise.



YARN ready for shipment is placed on the spare floor near the winders and adjacent to the shipping platform. Flow of stock from opening to shipping is in a straight line.



RIBBONS from the finishing machine, right, either pass through the calender or pass over it to the back take-out rolls and storage baskets at the left.

ELECTRIC CALENDER
Improves Ribbon Finishing

HIGHLIGHTS: Classe Ribbon Works converts flame-heated calender to electric heat and controls—Calender rolls 17.5x7 in. are heated with 3,200 watts—Heat control has range of 200 to 450° F.

By **E. DALTON WHITE,** McGraw-Hill Atlanta Bureau

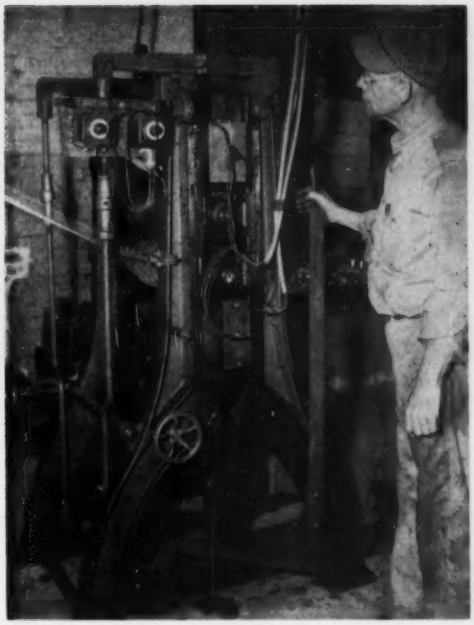
CLASSE RIBBON WORKS, Anniston, Ala., has increased production and improved finishing quality by converting a nonautomatic flame-heated calender to electric operation.

Several other advantages have been gained as a result of the conversion. The calender does not require constant attention and frequent adjustment; it can either be operated continuously in straight-line production with the finishing machine, or the finishing machine can be by-passed, depending on the nature of the fabric; it insures uniform quality in finish and color; and there is flexibility of operations. Temperature can be set and maintained within narrow limits.

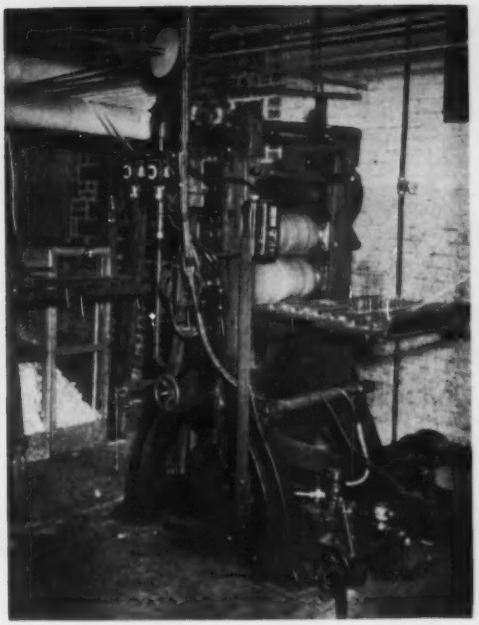
Before conversion of the calender, the drums were gas-fired by means of a horizontal perforated tube. To insure proper combustion of the gas, compressed air was blown into the tube. Variation in gas pressure and btu. content resulted in like variation in temperature of the cylinders. Overheating resulted in scorched material; and if acetate fabrics were being processed, there was diffusion. Whites would take on a yellow hue, and other colors were somewhat distorted. Overheating also resulted in a polish to the fabric rather than the desired sheen. A drop in temperature below the desired level would mean that the fabric was pressed rather than calendered.

Another disadvantage the mill experienced with the gas-fired calender was that it required constant attention and adjustment. Because of this factor, the mill generally withheld stock until a sufficient amount had been accumulated for several hours' operation of the calender. This practice resulted in duplication in handling from the finishing machine.

MILL DESIGNED. The changeover to electric operation was devised by L. L. Mitchum, master mechanic and head of the maintenance department at Classe, and Harry Hohlmann, division service supervisor of Alabama Power Co. Chromalox automatic units



CALENDER for narrow-fabric finishing is now electrically heated and controlled. The hand lever held by operator was retained for emergency use.



ROLLS are lifted and lowered by an air-pressure device at the base of the calender. Four push-button switches start and stop the machine.

were used to furnish the heat. Rheostats and control instruments were installed, and hand-operated roll lifts were converted to compressed-air lifts.

The calender has cast-iron cylinder rolls 22 in. long with a 7-in. outside diameter and a 3-in. inside diameter. The face of each roll is 17.5x7 in. In the conversion, the electrical units were inserted and the ends of the rolls closed with metal caps.

The electrical heating device was made up of eight 400-watt, 115-volt alloy sheath units ½ in. in diameter and 21 in. long. Two units were connected in series to operate on 230 volts. The result was 3,200 watts per roll and a density of 14 watts per square inch.

The eight round units were mounted on three separate plates for a circular assembly and placed stationary inside the rotating roll, replacing the flame heat. An eight-unit assembly was used in each of the two metal rolls, one above the other.

TEMPERATURE CONTROL. Temperature is controlled by a calibrated, non-indicating thermostat for each assembly. The thermostat has a steel bulb and five feet of capillary tubing. Temperature range is 100 to 1,000° F. In addition to the thermostat, a 230-volt, 3,500-watt rheostat is used with each roll assembly.

The thermostat unit is arranged to obtain heat control between 200° and 450° through an automatic switch. A signal lamp on the panel board remains lighted during the period the rolls are being heated to desired temperature.

Any number of ends, up to the maximum width of the roll, can be run on the calender in combination with the finishing machine. The electric heating gives the advantage of controlled temperature for the various types of satin and other fabrics.

For flexibility of operations, the calender is installed between the finishing machine and the back take-out rolls. One or more ends from the finishing machine can be processed through the calender, while others bypass it. Another advantage in this arrangement is that samples can be run through the calender without interfering with normal production.

Ends from the finishing machine that are not to be calendered pass over the top of the calender and through the felt-covered back take-out rolls, drop into wire baskets, and are sent to the packaging department.

CONTROLS. There are four stop and start push-button switches on the finishing machine that also control the calender. These switches are in addition to controls for calender operations only.

Mr. Mitchum devised a control arrangement whereby the rolls on the calender are automatically raised and lowered when the calender is stopped or started, either by its own controls or those connected to the finishing machine. The control for these operations is through a solenoid and compressed-air arrangement.

In operating the calender, the rolls are wet down every 2½ to 3 hr.

Maintenance of the rolls varies with operations, depending on the use and the weight of the materials calendered. Rolls are ground when needed, with the frequency varying from once in three weeks to once in several months. When the rolls require refacing, they are removed and ground in a lathe with an emery wheel.

Classe Ribbon Works manufactures ribbons and narrow fabrics in widths varying from ¼ in. to approximately 5 in. Fibers and combinations include viscose rayon and cotton, all rayon, acetate and cotton, and all nylon. Products include millinery belting, lingerie, grosgrain, satin, and hat-band materials.

HERO Sidney Stratton (British actor Alec Guinness) was a brilliant research chemist at Cambridge but is now a dishwasher in the laboratory of a textile mill. Instead of attending to his duties, he dreams, studies, and works to make an everlasting fiber.

HIS EXPERIMENT, unauthorized by the mill, is discovered when Alan Birnley (Cecil Parker), *center background*, visits the laboratory. Birnley is a mill owner, an investor, and the father of a fetching girl. Stratton is kicked out of the mill.

HERO latches on to Birnley's daughter Daphne (Joan Greenwood). He explains the chemistry of his fiber to the bewildered girl; and from then on, she's on his side and decides to help him.

DAPHNE, vaguely familiar with textiles, has read up on the chemistry of synthetic fibers. Now she persuades her father that Stratton's wonder fiber is a red-hot investment.

BIRNLEY sets Stratton up in a modern laboratory and pays the bills for his experiments. For some time, most of the experiments end in explosions that almost wreck the place.

MILL-OWNER FRIENDS tell Birney that production of the everlasting cloth would eventually put every mill in the world out of business. They demand that the fiber be outlawed.

CLUTCHING THE UNSIGNED CONTRACT, by which he would have agreed to kill his fiber, Stratton tries to escape the mill owners. They lock him up, but Daphne helps him escape.

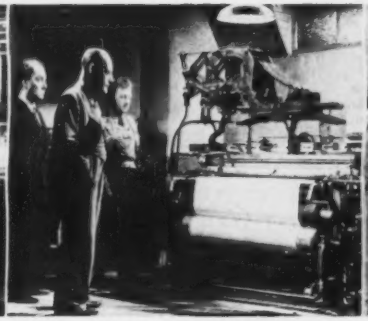
TEXTILE TYCOON, sour old Sir John Kierlaw (Ernest Thesiger), seated at the desk, explains to the workers that Stratton's indestructible fiber will put them out of work.

British Movie Pokes Fun
At Synthetic Fibers

► "The Man in the White Suit," a British satirical comedy now showing in the United States, is a movie all textile men will want to see. Though it leaves something to be desired in the way of comedy, it is a first-rate satire on an important textile subject—a new wonder synthetic fiber that won't stain, soil, dye, break, or wear out.

Pictures and captions on these pages give some of the highlights of the movie.

SUCCESS! To a frightened Birnley, who unknowingly was in a position to be killed if this experiment had exploded, Stratton shows the plastic liquid that will revolutionize textiles.



THE EVERLASTING FIBER is woven into cloth. A tired Stratton downs coffee while Birnley gazes at the wonder cloth. Unseen is the blowtorch needed to cut the filling or the fabric.

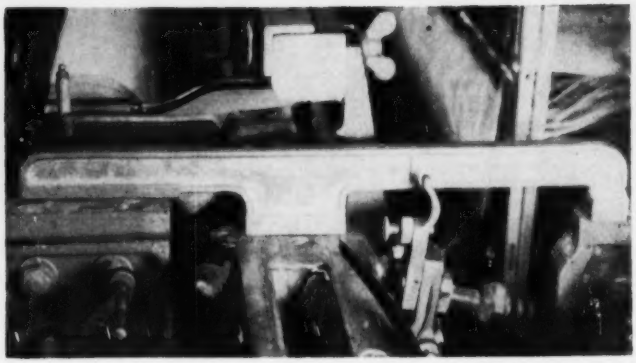
THE CLOTH is made into a white suit, which Stratton proudly shows to his mill-worker friends. The men get the germ of an idea that the fiber holds a threat to their jobs.

THE MOB of workers runs Stratton down. At bay by the mob after a lengthy chase through the streets, he tries to defend himself with a wooden stool for a shield and a club.

HE IS CAUGHT, but an unexpected thing happens: The wonderful cloth disintegrates. Wads of the unstable white fiber litter the street. Someone gives Stratton a trench coat to cover himself.

DESERTED, Stratton leaves Birney mill. But notes in hand and muttering chemical formulas, he quickens his stride and his face lights up. He thinks he knows what was wrong with the fiber!

ALIGN THE LAY to the breastbeam with the lay-centering gauge before any other battery settings are made.



THE ROCKERSHAFT BEARINGS are set to raise the lay to the height determined by the lay-height gauge. The three aligning points are the breastbeam, the lay, and the center horn of the loom side.

Use Seven BATTERY GAUGES *To Set High-Speed Looms*

▶ The worst thing you can do on high-speed looms is to let your loomfixers use rule-of-thumb methods. The best thing you can do is to require that each battery be set with the proper loom gauges. The results of accurate gauge settings will be—

- **Fewer broken bobbins at the transfer**
- **Fewer false changes of full bobbins**
- **Fewer warp breakouts from hung bobbins**
- **More production because of fewer loom stops**

By **W. C. WESTBROOK,** Consulting Editor, TEXTILE WORLD

THE LOOMFIXER MUST work to close tolerances when he adjusts the parts of the filling-changing mechanism of a high-speed loom. You can realize the exact timing required when you consider that the complete cycle, from the time the feeler indicates a filling change until the transfer is completed, takes two-fifths of a second. The faster the loom runs, the closer these settings and timings must be.

When aligning the batteries of the older models of looms that operate at speeds of 160 ppm. or less, the loomfixer can do a fair job using rule-of-thumb methods. But these methods are not good enough for looms that approach and sometimes exceed speeds of 200 ppm.

Seven parts of the filling-changing mechanism of high-speed looms should always be set with gauges. These gauges are made to order not only for each model loom but also for each lot of looms. A mill may have some looms of identical size and model, yet the looms were probably made up at the factory in two or more separate lots. Gauges should be made especially for a particular lot of looms unless you can prove that the parts to be gauged are identical in every respect to those for which the gauges are made.

In our mill we have 524 X-2 looms that seem identical in every respect—until you look closely. We checked the looms and found that 108 are of a different lot number and have a number of differences in their construction. This difference may be in the throw of the crank, the size of the shuttle, or the length of the quill to be used; but small variations can mean a lot when you gauge the hopper stand or set the changing mechanism.

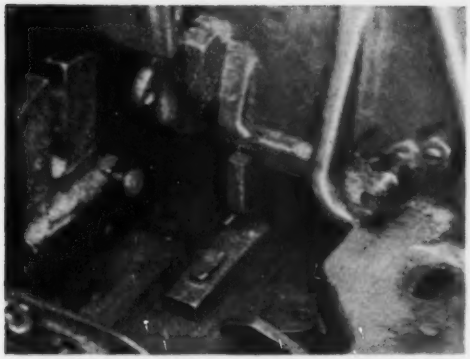
The principal gauges used in connection with the filling-changing mechanism are:

1. The Lay-Centering Gauge

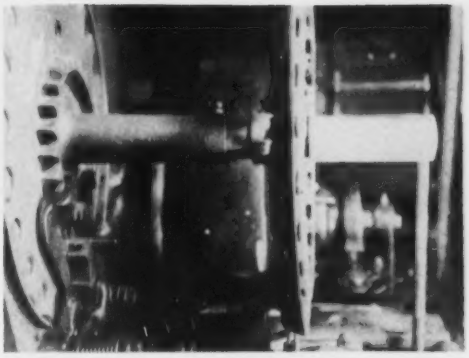
The center of each lay is marked with a line etched vertically on the front side of the lay. Opposing this line is a small notch in the breastbeam. To center the lay, place the gauge on the lay with the beveled edge touching the etched line, the arm of the gauge extending to the breastbeam, and the sharp point of the arm centering the notch in the breastbeam.

Move the lay by loosening the lay-guide followers and the swords. Tighten these points again when the lay has been moved into position.

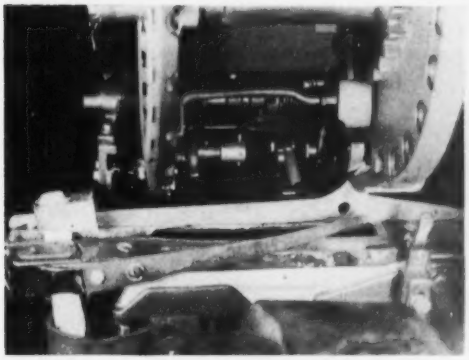
Never attempt to move the lay laterally by springing the swords and holding them in place with the lay



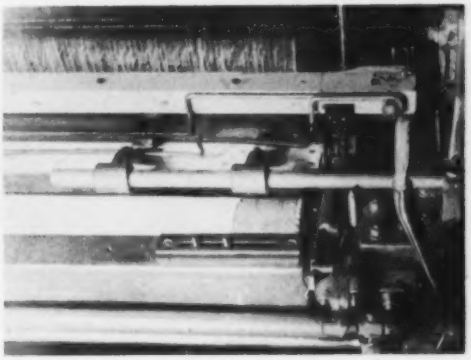
THE HOPPER STAND must be set a given distance over the lay-end plate. The battery-height gauge spaces the distance at two points simultaneously.



IF THE BOBBIN is to be transferred to the shuttle accurately, the bobbin must be level in the battery. The battery-leveling gauge controls this setting.



POSITION THE BATTERY to the shuttle, lengthwise, to transfer the bobbins into the shuttle the same way on each transfer. A long gauge is used for this setting.



THE TRANSFER HAMMER must drive the bobbins into the shuttle without striking the shuttle with the bobbin. This gauge is used to align the battery to the shuttle.

guide. This practice will result in excessive wear on the lay guide and followers, the swords will not remain tight on the rockershaft—and you might also get a broken sword or a warped lay.

2. The Lay-Height Gauge

Three aligning points are used to adjust the lay to the correct height: a, the breastbeam; b, the lay; and c, the center horn of the loom side.

Place the gauge on the breastbeam and the horn, and, with the rockershaft bearings loose, raise the rockershaft until the middle projection of the gauge rests squarely on the lay. (The ends of the gauge should remain on the breastbeam and the horn.) Tighten the rockershaft bearing, drill the holes, and drive dowel pins through the bearing into the loom side.

3. The Lay Gauge

This gauge is used to space the distance from the surface of the backbox plate to the inside of the front horn of the loom side. This distance should be carefully gauged on both ends of the loom after the back boxes have been aligned with the reed. On older looms, adjustments are made by turning an eccentric crank-arm pin. On modern looms, the crank arm itself is adjustable.

4. The Battery-Height Gauge

The height of the battery is gauged at two points simultaneously. One gauge rests on the lay-end plate, or box plate, and has two stops. The hopper stand should be high enough for the lowest of these two stops to slip under the milled surface of the hopper stand.

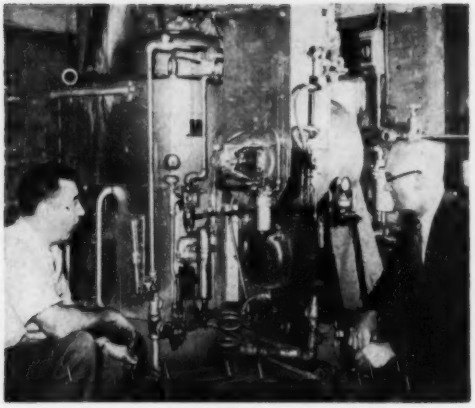
The hub of the other gauge is placed on the end of the bobbin-disk stud with the arm extending downward and resting on the top surface of the box plate. If the battery is too high, it can be lowered by filing the lugs on the breastbeam; if too low, a shim can raise it.

5. The Battery Lateral Gauge

To adjust the battery with the lay laterally, use a long gauge made with a projection that rests against the milled lug on the bottom of the hopper stand. The small end should be flush with the end of the box plate if an 8¼-in. quill is used.

The notches in the gauge are to be used for other lengths of quills. The shorter the quill, the shorter should be the distance from the lug of the hopper stand to the end of the box plate.

(Continued on page 224)



1 AUTOMATIC STEAM GENERATOR with a 3,000-lb.-per-hr., 125-lb. head is the heart of the Ideal Spread Co. operation in Montreal, Quebec.

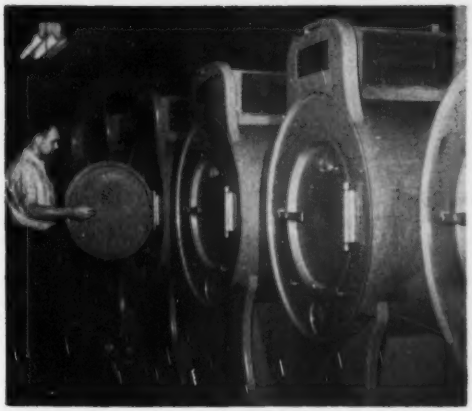
2 A TUMBLER-TYPE Partex dyeing machine, one of two in the plant, handles up to 150-lb. loads. A dyeing cycle of 30 min., at a near boil, is sufficient.

5 PATTERNS ARE DUSTED ON by use of chalk blocks over a master-guide, perforated, pattern form.

6 ANTI-SLIP FINISH of liquid latex is sprayed on bath mats and small rugs, then hand-rubbed.

7 HOUSECOAT AND OTHER GARMENT PATTERNS are marked on the back of the tufted goods.

8 THE ONLY REAL SKILL needed in the operation is flowering and trim stitching.



3 EIGHT TUMBLER-DRYERS handle the output of the dye kettles. Fifteen min. at 325° F is the routine for each 25-lb. batch handled.

4 CHENILLE SPREADS are tufted on this Super-Tuft machine at a rate of one spread per minute. The operation is so simple that expert labor is not needed.

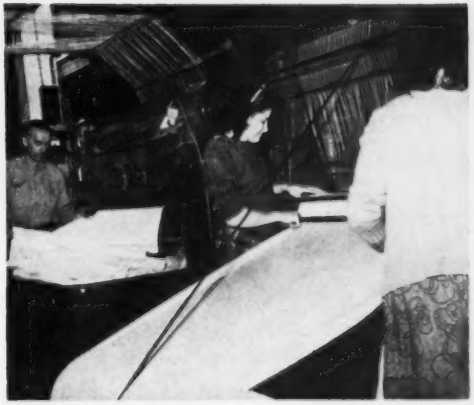
No Boiler Room, No Boiler Tender, Plenty of Steam

► An automatic steam generator on a third-floor installation furnishes steam for an 8-hr. dyeing and finishing operation with 190 gal. of fuel oil per shift.

IN MONTREAL, CANADA, a profitable operation is being performed by Ideal Spread Co.—making chenille spreads, housecoats, rugs, and mats—and the dyeing and finishing operations are supplied with steam 2 min. after the first morning whistle. A self-contained, automatic, Vapor-Clarkson steam generator is switched on by the superintendent when the plant opens, and requires no attention thereafter.

To improve efficiency of operation, a heat-exchanger unit uses the spent dye liquor to preheat the intake water.

Economy of operation and the lack of necessity for special engineering make the initial cost of "going into business" low enough to enable young, budget-wise enterprises to start up without huge plant-construction costs.



9 HOUSECOAT MATERIAL, 46 to 76 in. wide, is tufted here at the rate of about one housecoat per machine-minute.

10 A FINISHED SPREAD hangs on display in the Montreal showroom of Ideal Spread Co.

Causes of BARRE CLOTH— A Survey of 67 Mills

▶ We asked the country's leading mills what caused barre' cloth. Here are the mill answers. The suggested remedies have been added by TEXTILE WORLD.

▶ The mills all agree that the major causes of barre' cloth are—

- **Uneven yarns**
- **Malfunctioning of the let-off**
- **Faulty take-up motions**

By VICTOR E. HILLMAN
Director of Research, Crompton & Knowles Loom Works

Faulty Yarns Are the Leading Cause

Since we had often been led to believe that barré cloth is usually caused by the loom, we were surprised to learn that faulty yarns are the main source of barré marks.

Improper slashing and differences in yarn twist are the most-often-named yarn causes of barré marks; a more complete list includes:

1. Uneven twist from mechanical trouble in twisting, or from tight or loose bands in spinning
2. Excessive drag or uneven tension in winding
3. Uneven blending
4. Variation in yarn size
5. Winding of wet skeins
6. Variation in filling-winding tension
7. Warps stretched in slashing
8. Uneven slashing caused by improper slashing methods
9. Uneven contraction of the filling caused by moisture variation when filling is conditioned
10. Variation of the relative humidity in slashing and weaving

Loom Let-Off Leads Mechanical Causes in Weaving

The let-off is the most frequently named cause of barré marks in weaving.

On mechanical let-offs these items are listed:

1. Worn gears
2. Worn worms
3. Binding of parts
4. Worn shafts and other parts (Larger beams mean more strain on the let-off, and, consequently, more wear)
5. Too much warp tension

Friction or rope-and-chain let-offs cause more trouble than mechanical let-offs; the complete list of trouble spots includes:

1. Sticky ropes
2. Dirty chains
3. Binding of the compound lever
4. Weights touching the floor
5. Ropes or chains binding on the edge of the beam flange
6. Ropes not pliable
7. Levers not set correctly
8. Improper weights
9. Excessive top-beam vibration

Faulty beams cause a lot of barré cloth on both mechanical let-offs and rope-type let-offs; causes mentioned are:

1. Head loose on the warp beam
2. Binding of the warp beam
3. Bent beam gudgeon
4. Warp-beam barrel not true
5. Cracked or broken beam flange

The take-up ranks second in loom mechanical causes of barré marks; these causes are:

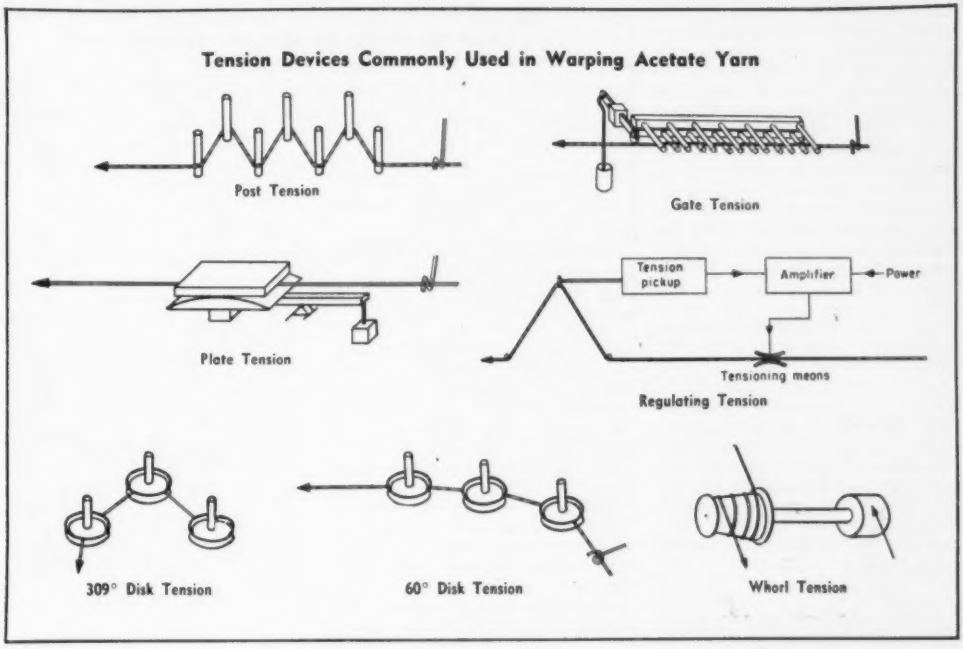
1. Cloth sticking to the guide roll
2. Cloth slippage at the take-up roll as a result of worn coverings or improper coverings for the material that is being woven
3. Loose covering on the take-up roll
4. Tight bearings (binding the studs)
5. Worn bearings
6. Slippage at the pick gear
7. Broken teeth in the pick gear
8. Binding at the pick gear
9. Worn gears
10. Worn studs
11. Gears meshed incorrectly
12. Worn take-up-roll gudgeons
13. Loose take-up-roll gudgeons
14. Cloth roll too tight
15. Lint in the take-up gears
16. Cotter pin out of the pick gear (pick gear binding on the side)
17. Gears binding
18. Let-back pawl set incorrectly
19. Binding of the take-up roll
20. Binding of the pressure roll
21. Worn pressure-roll covering

Miscellaneous Loom Faults That Cause Barre Cloth

Although faulty yarns and slashing methods and faulty let-off and take-up motions are the chief causes of barré cloth, various mechanical faults in the loom can make barré marks. The most prominent faults are:

1. Loom out of level
2. Improper adjustment of the lay (crank, connector, springs, etc.)
3. Improper timing of the warp shed
4. Whiproll bearings out of alignment
5. Whiproll not true, binding, or worn at the gudgeon
6. Bad whiproll springs
7. Loom frame not square
8. Loom loose on the floor
9. Excessive vibration of the floor
10. Worn crankshaft bearings
11. Worn crank arm or pin
12. Loose crank arms
13. Worn ball bearings in the whiproll
14. Crooked guide roll at the breastbeam
15. Lost motion in the reed
16. Eight ends drawn in one dent of the reed
17. Loose driving gears
18. Loose or worn crankshaft and camshaft bearings
19. Worn harness sheaves and shafts
20. Worn harness treadles or treadle balls
21. Binding of the yielding reed
22. End play at the rocker shaft
23. Worn bevel gears on the head upright shaft (Knowles head)
24. Excessive play in the head-motion eccentric gears (Knowles head)
25. Worn clutch cork
26. Worn clutch, or worn clutch spool and connectors

(*Continued on page 208*)



Watch Angularity of Yarn In WARPING SYNTHETICS

▶ Here are the results of a series of tests designed to show how various factors, including tensions used, affect tension variation. Compensating tensions showed up best, but because of practical considerations, conventional devices can be used if angularity of yarn is held to the minimum.

By R. F. DYER, W. G. FAW, and R. L. BEARD
Development Dept., Tennessee Eastman Corp.

HIGH-FREQUENCY and long-range variations in tension in warping continuous-filament synthetic yarns from cones can be satisfactorily eliminated by conventional tension devices, provided the angularity of the yarn path is held to a minimum. These variations can also be almost completely eliminated by properly designed compensating tension devices, but none of these is completely satisfactory because of cost, maintenance, or adaptability. Conventional devices, on the other hand, are generally simple in construction, low in cost, and trouble-free in operation. We believe that a multiple-disk tension with minimum snubbing, as described in this report, offers the most practical answer to the problem of tension control in warping.

The accompanying table shows various tension devices in rank order (from 1 to 7) for each of a series of tests made in our Development Dept. that will be described. The compensating tensions gave the best results, and in non-compensating types the rank order is directly proportional to the degree of snubbing.

Based on a paper delivered before a recent meeting of The Fiber Society.

Why These Tests Were Made

In processing synthetic yarns, small variations in tension may become extremely objectionable because the high degree of uniformity of the individual strands exaggerates any slight deviation from the normal arrangement of the fibers in a fabric.

In the manufacture of acetate yarn, for example, it is very important that the tension be controlled in the spinning process, in twisting, and in winding. However, of all processes encountered, the tension in warping is perhaps most critical. In preparing section beams, for example, one may have from 600 to 1,000 ends running parallel, each having its source at a different bobbin or cone.

Any variation in the average tension will affect the density of the beam. If the tension from a set of bobbins should increase progressively as the

yarn is withdrawn, the first beam wound from the creeling would have a lower density and a greater diameter than the later beams wound from the same creeling. Since the yarn from these beams may be eventually combined in the same fabric, this variation might be detrimental to the quality of the finished product.

If the tension should vary from end to end in the warp sheet, there would be a variation in density within the beam that would show up as ridges and valleys on the surface of the beams. Obviously when this yarn is withdrawn from the beam to be woven, some of the ends will be tighter in the fabric than others. This condition, if of sufficiently great magnitude, may cause stretching of the tight ends, but under any circumstances it may cause warp streaks.

To study the various types of tension devices commonly used in warping acetate yarn, we have classified tension devices into seven fundamental types. These seven types are shown and described in the accompanying illustrations.

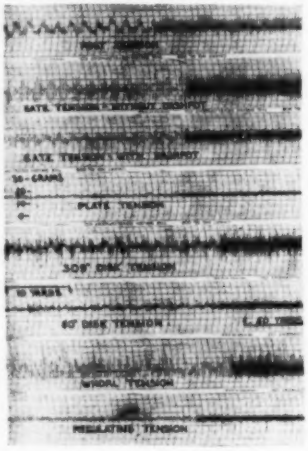


FIG. 1

How Each Type Tension Performs

Having classified tension devices into seven representative types, let us consider the tension characteristics of each type under various conditions. The accompanying Fig. 1 shows the short-term tension variations occurring from 0 to 100 cycles per sec. For this test we used 150-den., 38 filament, 2 turns, dull yarn, at 300 ypm. The chart was made while yarn was being withdrawn from the middle of the cone. The experiment was set up to give approximately the same average tension with each device, namely, about 15 grams. The amount of the high-frequency tension variation as shown in the graph is more or less characteristic of each of the various devices tested.

RELATIVE RANK OF TENSION DEVICES

1 = Best, 7 = Poorest

Short Range Variation	Post	Gate	Plate	309° Disk	60° Disk	Whorl	Regulating
Twist	5	4	1	6	3	7	2
Speed	7	4	3	6	5	1	2
Cone Size	7	3	4	6	5	2	1
	7	3	5	6	4	2	1

HOW TENSIONS RANKED in controlling various types of tension variation is shown in this chart. Regulating tensions are best, of course, but practical considerations may rule out their use.

All tension devices that have a high degree of snubbing, namely, the post tension, the gate tension, and the 309° disk tension, show a high degree of tension non-uniformity. The plate tension shows very little variation, and the 60° disk tension is almost equal to the plate tension. The performance of a regulating tension is very similar to that of a plate tension. Obviously, the control mechanism was not fast enough in response to compensate completely for the variations at this high frequency. The whorl tension shows very high amplitude. We believe this to be caused by the yarn catching under itself on the whorl and creating a sloughing action that recurs with regularity every 3 or 4 revolutions. This condition might be overcome by changing the design of the whorl.

By observing the oscillograph charts closely, it is possible to determine the source of some of the variations. The post tension, for example, shows the two distinct frequencies. The lower frequency that produces the variation of the greatest amplitude corresponds to the traverse on the coning machine. The high-frequency variation of slightly lower amplitude that is superimposed on the traverse variation corresponds in frequency to the revolutions per second of the balloon around the cone. This will be shown more clearly later.

In the gate tension we have the same fundamental frequencies amplified somewhat by the chatter of the fingers. The addition of the dashpot tends to reduce the chatter to a very large extent. The disk tension with 309° wrap still shows the same frequencies upon which has been superimposed a third higher frequency that we have attributed to chatter in the disk, amplified by the posts.

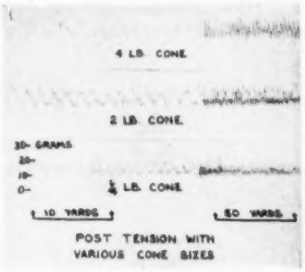


FIG. 2

Figure 2 shows tension curves made from cones of three different sizes. It will be readily observed that the frequency of the tension variation is largely caused by the action of the balloon and traverse motion. We have carefully analyzed these curves and have found an exact correlation in this respect. It would be well to point out that the total magnitude of the tension on the yarn as it enters the tension device is very small, although variable in nature. This high-frequency variation is almost entirely attributable to input tension. It can become objectionable only when it is greatly magnified by snubbing action.

Twist vs. Tension

It is a little more difficult to show directly the effect of variation in the coefficient of friction. One factor that affects the coefficient of friction and that can be controlled for test purposes is twist. We may assume that yarn in process must have considerable variation in twist at different points along the strand.

This variation may be caused by snubbing action of guides or the tension device itself that tends to push back the twist and permit it to move forward in surges. It is also quite possible that small variations in twist may exist from end to end or from yard to yard along a given end due to

variables in the manufacturing process.

To show how such variations in twist might affect the final tension in warping, we have measured the tension on cones that were wound from yarns having three different standard twists, namely, 0.3, 2.0, and 3.0 tpi. Several 1,000-yd. lengths of yarn of each twist were run on a cone. The yarn was withdrawn continuously at 300 ypm. and the tension was recorded by means of the G.E. recorder. The results of this test are shown in Fig. 3.

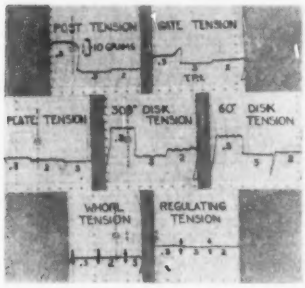


FIG. 3

Here again, the multiplying tensions tend to exaggerate the differences in proportion to the degree of snubbing involved. In this case it is the coefficient of friction that varies from sample to sample, and from the equation we would expect a large effect on the resultant tension due to the exponential relationship. The plate tension shows very little change in tension, indicating that the actual change in the coefficient of friction is relatively small. It was interesting to note that the gate tension registers a high level at the beginning of the 0.3-tpi. yarn and gradually drops off to a lower value. This is characteristic of the gate tension under the conditions of this test. It is probable that the twist is snubbed back by the action of the fingers so that the first yarn passing through the tension gate has little or no twist. As the twist builds up behind the tension devices, it finally reaches the equilibrium value as indicated by the flat part of the curve.

Neither the whorl tension nor the regulator tension is affected to any great extent by the variation of twist. This result is logical since the coefficient of friction is not a determining factor in the tension obtained with either of these devices.

Tension vs. Speed

It is well known that the coefficient of friction of yarn varies with speed. Fig. 4 shows the effect of speed on tension. This test was run with 150-d.n., 38-filament, 2-turn, dull yarn. The speed was varied from 0 to 455 ypm. On the charts, this speed was increased at a uniform rate of 40 ypm. per min. while the tension was recorded on the GE recorder. The results obtained here again show the large effect of the increasing coefficient of friction on multiplying tension as compared to additive tensions.

One very significant fact that may be observed from these results is that the simple post tension provides very little tension at low speeds. This fact is important in a beaming operation since the ends would tend to sag in the yarn sheets when the beamer is stopped. With the additive and compensating tensions there is very little change in tension throughout the normal range of warping speeds (150 to 500 ypm.).

Tension vs. Cone Size

Finally, we made a series of tests more directly related to standard warping practice. In order to show the variations in tension that may be encountered in withdrawing yarn from cones, we have prepared charts showing the performance of the seven types of tension devices throughout full cones of yarn. For these tests we used 150-den., 38-filament, 2-turn, dull acetate yarn. The withdrawal speed was 300 ypm. The charts shown in Fig. 5 are divided into three parts showing the tension on the first 6,000 yd., the middle 6,000 yd., and the last 6,000 yd. of yarn, respectively, from a 4-lb. cone containing a total of 120,000 yd. It has been found that most of the long-range tension variation within a cone occurs in the first few thousand yards and the last few thousand yards. The tension between these sections remains almost constant. This is most clearly shown in the top curve made with a post tension.

Although this type tension cannot be recommended where good tension control is desired, it is useful in studying the characteristic behavior of a given yarn due to the amplifying effect of the posts. It will be noted that the tension gradually drops off during the first 7,000 yd. to a constant level that continues throughout the cone until only a few thousand yards are left. At that point the tension begins to rise gradually for about 5,000 yards, rising

(Continued on page 230)

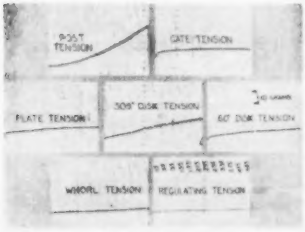


FIG. 4

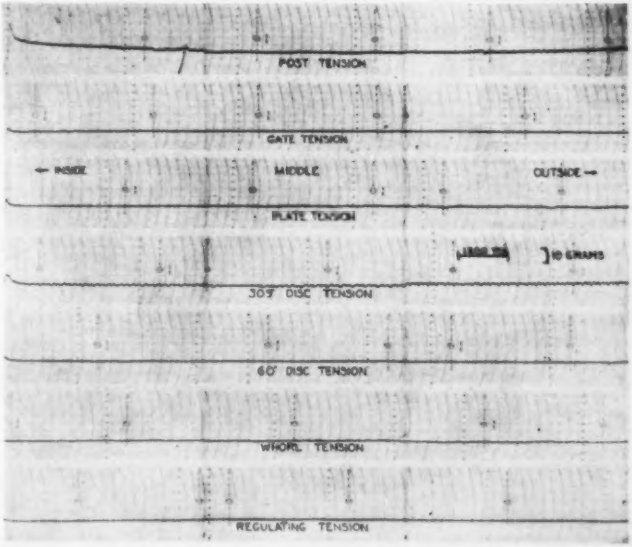


FIG. 5

AATT Explores Modern WORSTED-SPINNING Systems

"No machinery details—just results!" That was the request made by AATT to machinery manufacturers representing the three major worsted-spinning systems. Here's a summary of how each system would be used in a modern worsted-spinning plant and the results that each could produce.

FRENCH SYSTEM Offers Flexibility, Ability To Compete

- Little limitation on fiber length imposed
- Wide variety of fibers can be processed
- Smooth, even, strong yarns produced
- System is competitive

By VICTOR SAXL
Vice President, Stellite American Corp.

THE FRENCH SYSTEM is competitive. Under equal conditions, spinners not only can compete but also can make profitable use of the fact that cheaper tops can be used for spinning French-spun yarns that are highly regarded in the trade.

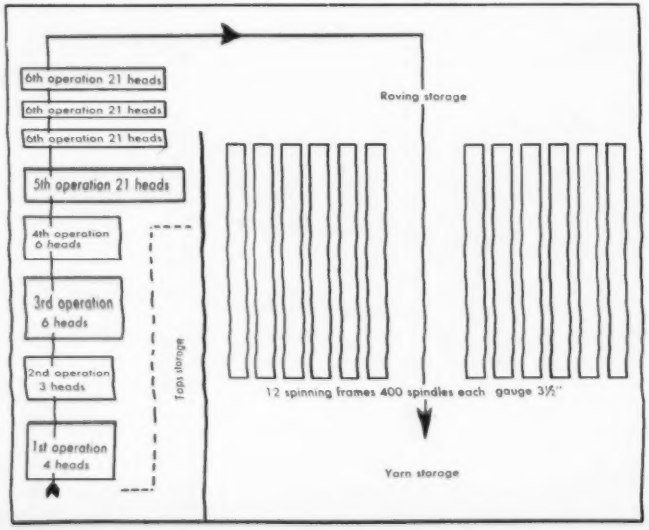
The French system can be simply and accurately defined by the following adaptation of the definition in the American Wool Handbook: "The French system is particularly adapted for short wools, the staple of which ranges from 1¼ to 4½ in., although longer wools have been successfully handled. It is used especially on short fine and elastic wools, which can be made into very uniform worsted yarns of soft and lofty texture, requiring little twist. It produces the most beautiful and soft yarns from weak and fine wools that can be produced on any system. The yarns, which are smooth and not hairy or fuzzy, are used extensively for underwear, hosiery, light dressgoods, men's wear fabrics, and other materials. The production of yarns of East Indian carpet wools and wools of similar character, as well as blends of cotton and wool and rayon staple, is being carried out with success. Use of dry-combed tops, rub aprons, and false twist that is only temporary characterizes the French system."

This definition is valid even in the light of recent developments and experiences with new spinning systems.

The nature of the French system is such that the full benefit of using wool tops and other raw materials combed on French combs can be obtained. One of these is reduced noilage in combing, a factor that makes it possible to produce cheaper tops. Even tops with uneven staple diagram can be spun into excellent yarns because of the constant fiber control throughout all drawing operations.

When we use suitable raw materials, we can spin from very low counts to the finest counts spun on any worsted system.

Of special importance is the fact that the system can successfully handle wools and blends of wools with other animal fibers, cotton, cellulosic and non-cellulosic synthetic fibers, as well



MEDIUM-SIZED French drawing and spinning mill with 4,800 spindles could use this schematic layout. Production per 40 hr. would be 9,000 lb.

Advantages of French System

1. The French system has pin control throughout all drawing operations and gives constant control to short and long fibers alike.

2. Fibers of a length from about 7 to 9 in. or even 10 in. can be processed.

3. No tops of rigid staple length or square staple are required. Tops with a higher coefficient of variation and other cheaper tops can be used and converted into good yarn.

4. Almost any type of fiber can be processed—wool from the very finest quality to carpet grades, as well as other animal fibers, silk, and practically all types of synthetics.

5. Constant doublings and the use of untwisted slivers make it possible to produce a well-blended yarn, especially for mixed-color yarns and all kinds of blends.

6. The system is suitable for spinning of very low up to the finest counts of yarns, whereas some other systems can spin only limited yarn counts.

7. The yarns have a high degree of evenness, great strength, and elasticity that is especially desirable for single warps.

8. The yarn is smooth, soft, lofty, even, and not as fuzzy as some yarns from other systems.

9. Long-term variations are generally smaller.

10. French-spun yarn is dry-spun and contains little oil. It can be sized easier when used in single warps. The shrinkage in finished materials is much smaller.

11. Synthetic yarns spun on the French system have the desirable worsted-like appearance and are smooth and even.

12. All these advantages can be achieved at production costs that under similar workloads, wage, and other cost conditions are competitive and insure profitable operations.

as each of these fibers by itself—except cotton.

Even silk can be spun. For instance, chappe (waste) silk yarns are being spun into worsted counts as fine as 170s, and the strength, elasticity, and evenness of the yarn leaves nothing to be desired. Not only very fine but also coarser and coarsest fibers can be processed.

A well-known manufacturer in New England just started to operate a French spinning mill for coarse wools and goat hair blended with rayon. He produces excellent yarn with a high degree of smoothness and evenness previously thought to be impossible to attain.

French System Improved

But just as a Model 1952 Ford is

Drawing Plan for Yarn -- Average Count 1/26s
Top weight: 250 gr. per yd.

Operation	Machine	No. of Machines	Heads	Doublings	Drafts
1	Intersect'g gill box	1	4	6	6.8
2	Intersect'g gill box	1	6	4	6.8
3	Intersect'g gill box	1	6	3	6.75
4	Open gill box	1	21	2	6
5	Open gill box	2	21	2	6
	Ring spinning frame			1	12/15

No. of machines	6
Actual production	About 300 lb. per hr.
No. of operators	7

Drawing Plan for Yarn -- Average Count 1/50s
Top weight: 250 gr. per yd.

Operation	Machine	No. of Machines	Heads	Doublings	Drafts
1	Intersect'g gill box	1	4	6	6.5
2	Intersect'g gill box	1	3	4	6.1
3	Intersect'g gill box	1	6	3	6
4	Intersect'g gill box	1	6	3	6
5	Open gill box	1	14	3	6
6	Open gill box	2	14	3	6
7	Superdraft porc. drawing frame	3	25	2	6
	Ring spinning frame			1	12/13

No. of machines	10
Actual production	About 200 lb. per hr.
No. of operators	9

Drawing Plan for Yarn -- Average Count 1/36s

Process	Machines Required	Machine	Per machine: Heads	Per machine: Bobbins or Cans	Per machine: Slivers	Doublings per sliver	Draft	Wt. of sliver produced Gr. per yd.	Speed yd. per min.	Theoretical prod.: Per machine Lb. per hr.	Theoretical prod.: Total lb. per hr.	Efficiency	Total actual production lb. per hr.
1st	1	Intersecting gill box	4	4	4	8	6.2	339	32	382	382	.75	286
2nd	1	Intersecting gill box	4	8	8	3	6.2	164	34	382	382	.75	286
3rd	1	Intersecting gill box	8	8	16	3	6.2	80.5	34	376	376	.77	290
4th	1	Intersecting gill box with rub apron	8	16	32	3	6	40.2	34	376	376	.77	290
5th	2	Open gill boxes	14	28	56	2	5.6	14.1	28.5	190	380	.77	293
6th	3	Superdraft porc. Ring spinn'g frames	25	50	100	2 1	6.7 12/15	4.23	30.5	108	324	.90	295

PROPOSED SPINNING ORGANIZATIONS for 1/26s, 1/36s, and 1/50s worsted counts use intersecting gill boxes or pin drafters as initial steps.

Drawing Summary			
Average count	1/26s	1/36s	1/50s
No. of operations	5	6	7
No. of machines	6	9	10
No. of operators	6	8	9
No. of doublings	288	864	3888
Approximate production of roving per hour	300 lb.	286 lb.	200 lb.
Approximate production of lb. per man hour in drawing	50	35.8	22.2

FRENCH-SYSTEM SUMMARY shows that more operations but fewer machines than in other systems are needed. Hence, operators are fewer and production per man hour is high.

a far cry from the Model T, so has the French or Continental system come an exceptional long way from the early '30's.

In those days, the French system was called "the porcupine system," because six to eight drawing operations were made on porcupine drawing frames. Before the advent of the Superdraft porcupine, drafts of only 4 to 4½ were possible. Consequently, only a slow reduction in the sliver weight could be obtained and a total of 8 to 11 drawing operations was needed. The first two or three operations were made on intersecting gill boxes that were followed by porcupine drawings.

Since then, new machines have been introduced and great improvements, which make it possible to reduce the drawing operations considerably, have been achieved. In spite of these facts some mistaken notions exist in some quarters. Two months ago I attended a wool seminar at the Lowell Textile Institute. We were shown that 40/1 worsted yarn was spun in ten drawing operations on the French system. This is no longer necessary on modern equipment.

With a new setup, you can spin wools and blends of wools as well as other animal fibers:

up to about 15s worsted count in four drawing operations

16s to 27/30s worsted count in five drawing operations

27/30s to 40/45s worsted count in six drawing operations

40/45s to 55s worsted count in seven drawing operations

For tops with a very uneven staple diagram or for delicate blends, you may have to add one more drawing operation, mainly aimed at increasing the number of doublings and making the yarn entirely even.

For counts finer than 55/1, one more drawing operation is needed.

Synthetics can be spun in fewer drawing operations.

Three Major Developments

The reduction in drawing operations was achieved by the following new machines and developments:

1. An increase in the number of intersecting gilling operations and the introduction of the intersecting gill box with rub aprons. These developments permitted higher speeds and drafts and a better fiber control.

Intersecting gill boxes or modified intersecting gills such as the Warner & Swasey pin drafter, Holdsworth gill reducer, and similar machines are used in these operations. These machines and their functions and the good results with which they are employed are familiar to you all.

The Continental-type intersecting gill box with rub aprons is used to great advantage in the last intersecting-gilling operation and delivers a round, well-condensed sliver to the open gills.

2. The introduction of the open gill box was an improvement. It was noticed that the control of fibers through the porcupines in the heavy passages was not quite satisfactory. Because of the longer distance between porcupine roll and front draft rollers, the control of short fibers was lost. Some fibers slid above the porcupine roller.

Therefore, ways and means were sought to replace porcupine rolls by fallers. As the sliver in the fourth or fifth operation is already light in weight, usually below 50 gr. per yd., it has been found advisable to use a single faller field instead of the double one. Hartmann in Germany made extensive tests and recommended the

Combing and Spinning Plan for Rayon

Production: about 250 lb. per hr. — Average Count: 30s Cotton (45s Worsted)

Process	Machines Required	Machines Type	Gauge per Head	Fallers per Head	Per Machine Heads	Per Machine Bobbins	Per Machine Sliver	Doublings	Draft	Sliver Prod. Gr. per yd.	Delivery Yd. per min.	Prod. per hr. at 100%
		Tow										
	3	Pacific converters										
1st	1	Intersecting gill box	560/450	39	5	5	5	x	x	282	33	400
2nd		18 Narrow combers or 14 wide combers								about 175 about 210		
3rd		Intersecting gill box	560/450	39	4	8	8	6 4	7	141	35	340
4th	1	Intersecting gill box with rubbing	480	46	8	16	32	2	7	40.2	33	364
5th	1	Open gill box	520	17	25	50	100	2	6	13.4	30.6	344
6th	4	Superdraft porc.	450		25	50	100	2	8	3.35	30.6	344
7th	18 or 20	Ring spinn'g frames 400 spindles						1				

Remarks: Practical production about 280 to 300 lb. per hr. in combing and 350 lb. per hr. in spinning.

FOR HANDLING SYNTHETICS, the above organization could be used. Some minor machinery modifications are also required.

use of open gill boxes, but with much finer pinning. This change was the beginning of the Continental system that was further developed and improved by French and Italian machine manufacturers.

On open gills, much higher drafts and speeds than on porcupines are possible. Maintenance costs are lower. The distance between the last faller and the nip of the front roller can be set as close as ¾ in. so that short and long fibers alike get perfect fiber control.

3. The Superdraft porcupine developed and patented by Stellite about two years ago permits an increase in drafts of 50 to 100% or from 7 to 10 against 4 to 4½. Superdraft aprons are used. The results obtained with this device in many mills in the U. S. and elsewhere are remarkable and prove that not only much higher drafts and speeds can be obtained but that the quality of the sliver is much improved.

Proposed spinning plans for wools and blends for 26s, 36s, and 50s worsted-count yarn, taking into consideration drafts of 12 to 15 on the ring spinning frame, are shown in the accompanying tables.

The first three or four operations are made on intersecting gill boxes, drafters, gill reducers, or similar machines. They are followed by one or two open-gilling operations. For yarns finer than 27s to 30s, one Superdraft porcupine is required, and for very fine counts, two porcupine operations are required.

Fewer Machines Needed

From the accompanying summary of drawing you see that although there is a slightly higher number of operations, fewer machines than in most other systems are needed. Hence, few operators and excellent production per manhour are obtained. Moreover, fewer machines mean a smaller investment, smaller power consumption, and smaller maintenance cost.

The ball delivery in the drawing operations is advantageous because balls can be easily transported, need a small storage space, and can be easily positioned on machines.

A schematic layout for a medium-sized French drawing and spinning mill with 4,800 spindles for a production of about 9,000 lb. or better on average counts from 24s to 30s per 40 hr. is also shown in the accompanying diagram. Usually five drawing operations would be sufficient, but one more drawing step is foreseen to enable the mill to process any type of materials and blends. You generally need a smaller space for an efficient French spinning mill. And saving in floor space means saving in capital investment, a very important factor, plus an aid to production.

Naturally, the setup, draft, and doublings have to be adjusted to the qualities of the materials processed, and the recommended plans are for wools and blends containing predominantly natural fibers.

Synthetics Also Processed

With the addition of rayon, acetate, nylon, and other non-cellulosic fibers, the drafts have to be modified. In many cases, the *Melange* intersecting gill box is being used to insure perfect blends. This machine is another contributed by the French system to the spinning process.

Medium- and long-staple synthetics can be spun on the French system with excellent results. However, special spinning and drawing techniques have to be applied. Higher drafts should be used. The ratch should be as open as possible. Humidities should be reduced, and in many cases antistatic agents are recommended. Even fine yarns can be spun after only four drawing operations.

The accompanying table shows a balanced setup for synthetic yarns of 1/45s from tow, cut on the Pacific Converter, gilled, combed, and drawn in four operations. You need only seven machines with 5 or 6 operators for a production of 250 lb. per hr. This spinning method is competitive. It produces excellent synthetic yarns with the desirable worsted-like appearance.

From the open gill box or the porcupine drawing frame, the roving is placed on the ring spinning frame. Each bobbin has two roving ends each —double *meche*—but usually only one end is used for each spindle. It is important to use frames that give full control to short and long fibers alike in order not to lose the advantage of the French drawing system. Spindle speeds are in line with those of frames of other systems.

From a purely technical point of view, the French system has a valid and important place in the over-all textile-manufacturing picture.

Why then, is there some discussion as to whether or not it can retain its competitive position?

The reason lies primarily in the sphere of over-all textile economy and in particular the very real problems faced by the industry in New England.

There is almost unamimous agreement among spokesmen in New England that a good many of the difficulties encountered are not dissimilar to those that the once great New England cotton industry had to face.

Then, as now, outdated machinery, lower workloads, higher wages, and other production costs were the basic factors they had to deal with.

Modernization Called For

It is true that a great many French spinners have already streamlined their mills and are in excellent shape, but others still use machines that are 30 or 40 years old or older. Some of these machines are slow, do not work well, and produce uneven slivers. Many mills still employ too many costly porcupine-drawing operations. Some of them spin on mules, although mule-spinning is roughly one third higher in cost than spinning on ring frames.

Workloads are another sore point. Whereas in the American system there was no precedent in workloads and work-assignments were made after careful timestudies, in the French system workers were accustomed to certain assignments. During the war and in the immediate postwar years when a seller's market existed, the situation was different and workloads were not of such a crucial importance. In the highly competitive market of today, reasonable workloads must be assigned to insure competitive strength.

That this can be done was confirmed by Frank Martineau in his recent series of articles "Which way Woonsocket?" published in the *Woonsocket (R. I.) Call*. He reports that one of the worsted manufacturers in Woonsocket, a French spinner who has a plant in the South, does the work there that used to be done in Woonsocket. He was quoted as saying that about 150 Southern workers are now doing the same amount of work that 300 would do in Woonsocket. This fact certainly does not need any further comment.

Furthermore, most French spinners are located in New England and have the disadvantage of the wage, tax, and other cost differentials that are handicapping the whole New England textile industry but hit French spinners with low workloads especially hard.

But just recently more optimistic reports have been coming in. It was reported recently that heavy plant-modernization programs and new machinery acquisitions are scheduled for 1952 by woolen and worsted manufacturers located in New England. The trend towards labor harmony in this area is giving encouragement and inducement to the remaining mills in the region. More realistic workloads are gradually being introduced everywhere, and work assignments based on time studies are slowly being accepted generally.

How a Modern Bradford System Is Organized

For 2/32s yarn from 4-dram roving of 56s: to 64s-quality wool:

STANDARD BRADFORD SYSTEM

Machines:
- 2 single-head, double-can, intersecting gill boxes
- 2 2-spindle intersecting gill boxes
- 1 6-spindle drawing box
- 2 6-spindle weigh boxes
- 2 12-spindle drawing finishers
- 2 20-spindle ring reducers
- 8 40-spindle ring rovers
- 16 200-spindle Magnum ring spinning frames
- 8 200-spindle two-fold ring twisters

Production: 5,000 lb. per 40 hr. at 70% efficiency in drawing, 78% efficiency in spinning

Doublings: 2,700 in drawing set, single end at roving and spinning

Drafts: Drawing, 6; spinning, 7

Operators: For drawing: 7

MODIFIED BRADFORD SYSTEM

Machines:
- 1 Single-head 2-can intersecting gill drawing
- 1 Single-head 2-can intersecting gill drawing
- 1 Double-head 4-can intersecting gill drawing
- 1 48-spindle cone reducer
- 8 40-spindle ring rovers

Production: Same as on standard Bradford set

Drafts: On reducer, 4.75

Doublings: 144

Operators: 5, although job assignment on gill drawing not up to maximum

Evenness of slubbing (wool)

Operation	% Variation
Gill Drawing	11.5
Reducer	22.5
Rover	25.8
Yarn	90.0

Evenness of synthetics (with square top)

Operation	% Variation
Gill Drawing	12.6
Reducer	20.7
Rover	21.7
Yarn	50 to 60

MODIFIED-BRADFORD System Requires Fewer Machines, Operators

- **Bradford system handles wide variety of fibers over 3½ in. long.**
- **In modified system, operations are reduced by two, operators by three, waste by 50%.**

By HAROLD V. FARNSWORTH
Vice President, Atkinson, Haserick & Co.

THE BRADFORD SYSTEM of producing worsted yarns is the oldest and still the most widespread system in use today. The essential points of this system are:

1. Processing in oil
2. The use of twist in the slubbing as a fiber control during drafting

The system is suitable for all fibers used in worsted spinning, with the exception of the shortest Merino wools or other fibers of similar length.

All long and medium wools (5 to 8 in. mean fiber length), mohair, alpaca, goat hair, human hair, and the like, can be processed successfully on the Bradford System. Fine Crossbreds and Merino wools, the latter not under 3¼-in. mean fiber length, are essentially the materials for which this system has been developed. Materials with a mean fiber length of 2¾ in. can be processed on this system, but any of a shorter mean fiber length are unsuitable.

Given a suitable raw material, this system produces the characteristic yarn so well known wherever cloth of Bradford quality is sold. One and the same set of drawing will only be able to process a certain range of material for which it is suited. The wide variety of fibers that can be dealt with on drawing machinery of the Bradford system is limited by certain technical details of the machine, so that it is not possible to have a universal set that will do everything.

Fiber lengths vary from 3½ in. in Botany wools to 15 in. in long prepared wools, and a machine made suitable for the former would be valueless for the latter, although both fibers are processed on machines of the same type.

Wide Variety of Materials Processed

It is generally considered advisable, in order to work the material under the best possible conditions, to divide the range of materials into about six groups:

1. Botany or Merino
2. Fine Crossbreds and Merinos
3. Medium and fine Crossbreds
4. Low and medium Crossbreds, goat hair, etc.
5. Long prepared wools
6. Mohair and alpaca

A set of Bradford drawing may include from five to nine operations, according to the type of material being worked and the weight of roving required.

The first two operations are always gill boxes, and sometimes an extra

Based on a paper delivered before a recent meeting of the American Association of Textile Technologists.

gill box is added to a set when mohair, fine wools, and blends or different materials or colors are processed.

The gills are followed by two, three, and four operations on drawing boxes, and the set is completed by one, two, or three operations known as finishing, reducing, and roving. Cone machines are often substituted for these last three operations when dealing with fine wools, blends of wool and synthetics, or 100% synthetics. Drafts are dependent on the average length of the material. Long fibers will stand longer drafts than short fibers. The drafts are usually lower in the early operations and generally increase progressively throughout the set.

Doublings are also a variable quantity, ranging from six down to three in the drawing boxes, from three to two in the finishers and reducers, and from two to one in the rovers.

When calculating the composition of a set of drawing, the production of the gilling and open-drawing operations is usually based on a front-roller delivery of approximately 1,200 in. per min., the dandy flyer finishers and reducers at 800 in. per min., ring reducers at 1,200 in. per min., and the dandy flyer rovers at 750 in. per min. or the ring rovers at 900 in. per min. Cone machines operate at lower spindle speeds than open or ring machines. The front-roller speed is dependent upon the twist inserted in the end produced.

The cone reducer, with a 10x5 bobbin, would have a maximum spindle speed of approximately 900 rpm. and a cone rover, with an 8x4 bobbin, would have a maximum spindle speed of approximately 1,100 rpm. A well-balanced set is based on the maximum production obtained from the two-spindle gilling operation. A double Botany set of open drawing should produce from 105 to 125 lb. per hr. The production on medium and Crossbreds is, of course, much higher.

Uniform Fiber Distribution Important

Tops of the same combing are never absolutely uniform in content, and the divergence is more obvious when blending different makes or qualities of top. It is very important that uniform fiber distribution or intimate mixing of the fibers be attained in the early stages of drawing. Inadequate fiber blending can never be cured in later operations and will manifest itself as thick and thin places in the resultant yarn due to the fact that short fibers have been allowed to pass forward in bunches instead of being evenly distributed.

In the spinning of various types of fibers, either flyer, cap, or ring frames are used. Flyer spinning is the original method of continuous spinning and is still considered indispensable for the production of thick counts of yarn from low quantities of wool, also luster, mohair, and alpaca yarns for linings, etc., as the nature of the material precludes the use of very high speeds. These machines are limited to a maximum spindle speed of 3,500 rpm., and the net yarn contents of the bobbins will vary from 1¾ to 4¾ oz.

Cap spinning is still the standard for counts over 40s and has been replaced with ring spinning on medium and coarser counts. The size of package will vary from 1¾ to 3 oz. net weight, and spindle speeds up to 7,000 rpm. are possible, depending upon the count and material to be spun.

Ring spinning is the most favored type now in use in this country because of the development of the large-package frame with spindle speeds up to 6,500 rpm. There is a net weight of 6 to 8 oz. on a package. This weight of yarn gives longer lengths of knotless yarn on the package and reduces the cost of doffing and creeling in subsequent operations. Exceptions to the use of ring spinning frames are:

1. Crossbred yarn for bright goods, lining, etc.
2. Goat hair, camel hair, human hair, and wool yarn for belting and press bagging yarn
3. Some mohair and alpaca yarn for brilliantines, linings, and Sicilians
4. Heavy shades of dyed wools that have lost some of their spinning qualities

High drafting in spinning on the Bradford system is in the teething stage. The Ambler system is in use in England and Canada but has not made much progress in the United States. Others in the development stage are the Abbot, Bird, Collins, MacDonald, and Whitin systems.

Modified Systems Mean Lower Cost

Modifications in Bradford sets, as found in many American mills, have come about because of the introduction of high-speed gill boxes with large-can delivery and higher drafts. Usually three operations replace the first five operations of the conventional seven-operation Bradford-drawing system.

With fewer machines to tend, larger packages at the delivery of each operation, and larger supply packages with less doffings and creeling-in, the number of operations required is usually reduced by about three. The larger packages mean fewer piecings, with less opportunity for slubs. The fewer operations mean a reduction of about 50% in the waste usually produced on the regular Bradford system, and the resultant yarn is loftier.

The reducers and rovers are still retained, and while machines of the open or ring type are often used, cone reducers are usually favored for the operation of converting the untwisted slubbing over to a twisted slubbing.

Cone machinery is used in preference to open or ring type because the winding-on in open finishing is obtained by causing the bobbin to lag with the aid of drag washers, the flyer leading, or in ring by the drag of the traveler, the bobbin leading. This operation puts a certain amount of tension on the slubbing. In cone machines, the tension of the material is negligible owing to the bobbin being positively driven. Therefore, it is possible to use larger bobbins and reduce the chance of a stretched slubbing.

As previously stated, the cone machines do not operate at the high speeds found in the open ring reducers and rovers so that more spindles are required for the same production.

Twist is first inserted at the reducing operation, and as the end being presented is in an open, untwisted form, drafts must be reduced and the ratch shortened. To obtain the necessary production from the third operation of gill drawing, a heavy end must be delivered so that one end only is put up behind the reducer. The drafting element of the machine is designed to draft against twist so that, to prevent feathering and to give some fiber control during drafting, it is necessary to insert some type of an element in the drafting field that will turn or condense the end while drafting.

In many mills, one end is again put up behind the rover, although in some instances double-end roving is used.

Doubling on any operation prior to roving tends towards cut slubbing, and the evenness of the end to be taken off is approximately twice that of the end being fed in, while the evenness of the end produced by the rover will only be about 10% as uneven as the end that is fed to that machine.

Results of evenness tests made on slubbing taken from each of the operations on this system are shown in the accompanying panel.

In laying out a new modified-Bradford set, for the reducing operation where the untwisted slubbing

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Here's How Evenness and Machinery Requirements of American System Compare With Others

	EVENNESS COMPARISON									MACHINERY COMPARISON For 5,000-Spindle Mill on 36s Worsted Yarn	
	American			French			Bradford			American	Bradford
Yarn No.	Av. Vari. (%)	Max. Vari. (%)	Deviation (%)	Av. Vari. (%)	Max. Vari. (%)	Deviation (%)	Av. Vari. (%)	Max. Vari. (%)	Deviation (%)	Pin drafters (or gills) Roving Spinning	Gill boxes Draw boxes Weight boxes Cone finishers Cone reducers Cone rovers Spinning frames
20s	55	98	11.2	66.6	120	12.9	78.3	145	16.1		
30s	72	129	15.4	82.3	135.6	16.9	74.3	139	16.2		
40s	76.3	131	15.6	88	150	17.1	90.7	155	17.9	10 operators 15,640 sq. ft. floor space	18 operators 18,800 sq. ft. floor space

AMERICAN SYSTEM Produces Quality Yarns for 10¢ per Lb. Less

- Yarns produced on American system are equal in quality to Bradford-system yarns
- American system is more flexible
- Roving requires less twist—production higher
- American system permits higher drafts
- Cost of 36s is 10¢ a pound less

By ROBERT J. McCONNELL
Vice-President, Whitin Machine Works

TODAY, ONLY FIVE YEARS AFTER its introduction, the American system is accepted as a standard system, and a large percentage of worsted yarns and fabrics are being processed on the American system. Considering the short time that the machinery has been available, the fact that about 15% of worsted spindles are now operating with American-system types of equipment or drafting mechanism indicates the progress it has made.

When the American system was introduced, the great danger was that many people would try to make worsted yarns with this system without proper knowledge or regard for worsted fibers, and that is just what took place. Also, any setup of equipment other than a standard worsted equipment was called the American system with the result that the market was flooded with inferior yarns. After 1948, the market for American-system-type yarns slowed down to a walk, and yarns made with this system were selling 5¢ a pound below worsted yarns made on conventional systems.

Fortunately, during that period, with only one exception, all the mills equipped with Whitin American-system equipment remained in operation, and there has been an increase in spindles every year until today there are about 300,000 spindles of our equipment in operation in the worsted branch of the industry. I do not intend to go into details about the machinery, but I think it will be of some interest to learn a little about the changes that have been made and also to learn something of the improvements that are in the making.

Machines Improved

The first machines to which the name American system was given were originally built specifically for rayon and acetate fibers up to 3 in. in length, and the first worsted fibers processed had to be of a length so that mean was around 2½ to 2¾ in. The top was processed through three processes of drawing, which reduced weight, added to the doublings, increased the parallelization, and broke the long fibers. The resultant sliver, which had an average variation of around 20%, was then processed through roving and spinning frames using double roving in the creel of the spinning frame. Worsted yarns made when the right-quality top was used compared favorably with average yarns made on conventional systems, but extreme care and attention was required, and the top supply in required lengths of required evenness was limited.

The Warner & Swasey pin drafter gave the American system a big lift, but we knew that the restrictions caused by length of fiber would retard the acceptance of the new system. Step by step we have changed and improved the functioning of our American system until today we can handle worsted fibers up to 7 in. in length and produce yarns that compare favorably with the best yarns made on conventional systems. To make these improvements, however, it was necessary to change from the methods used by the conventional mills because greater skill and care were imperative in the purchase of tops.

(Continued on page 220)

Based on a paper delivered before a recent meeting of the American Association of Textile Technologists.

Hosiery-Knitting Machines Produce RIB-KNIT Coasters

- Coasters are knitted with four welt courses alternating with one pull course
- Hem is seamed with a laid-in core of 10/4 yarn
- A knitted length of 4½ in. is trimmed to a finished length of 4 in.

By E. DALTON WHITE, McGraw-Hill Atlanta Bureau

KNITTED FABRICS have been successfully used for a wide variety of purposes, and future possibilities appear endless. One of the latest products is the rib-knit top used as a coaster for cold-beverage glasses.

Lawler Hosiery Mills, Carrollton, Ga., has started production of a line of rib-knit coasters in pastel shades and stripes. The coasters are knitted with high-quality 12/2 Durene mercerized yarn on Brinton ribbing machines. At first, the mill used a finer count of yarn but found that the coaster had greater elasticity and better appearance if a coarser yarn is used.

Coasters are knitted in string with a four-course welt, a pull course, and then four more coarses of welt. Vat-dyed yarns are used in knitting the stripes in bright colors. Solid colors are knitted in the gray, inspected, and the bottom sewed. Then they are dyed in bright pastel shades.

Coasters Knitted Like Hose

The rib-knit coasters are produced much in the same manner as rib tops for hosiery. Knitting is in 4½-in. lengths, with allowance made for a ¼-in. pull-off. Knitting machines are 18-gauge dial and 12-gauge cylinder, with a 4- or 4½-in. head with 84 needles each. Coasters are finished in 4-in. lengths.

In knitting the rib coasters, the machines are operated at about the same setting and speed as in knitting fancy rib. Machine adjustment, proper lubrication, tension control, and other factors are equally impor-

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NEEDLE-AND-CAM ADJUSTMENT is watched closely at Lawler, and hourly checks for knitted size and length of the coasters are made to insure uniformity of the product.

A FINISHED LENGTH of 4 in. is measured and marked before the coaster is hemmed. An overlap of ½ in. for the laid-in core and hem is allowed.

IN HEMMING, the operator must be careful to guard against distorting the ribs. Any irregularity in the hem will damage the fit of the coaster.

Mill Answers to 16 SPINNING, WARPING, and WINDING Questions

A cross-section of current spinning practices was discussed at the spring meeting of the Textile Operating Executives of Georgia. The carding portion of this meeting was summarized in the July issue of TEXTILE WORLD.

What Do You Think of Pneumafil?

All the mills that reported really going into air-suction cleaning like it.

Mill *FF* has the system on new Saco-Lowell SS-2 frames and says that yarn quality is better. This mill attributes any increase in waste to a poor spinner and lack of supervision. Their investment will pay off in 5 yr.

Mill *I* has eight frames on Pneumafil and thinks it will take 15 yr. to pay for itself. Frames are cleaner, flying ends are down, and there are less gouts and slubs, but they're getting 20% more scavenger waste.

Mill *O* claims a 75% return on its investment. Cleanliness of yarn is improved, and the work runs better. There is a little more waste, but the mill attributes it to the increased job-loads that the spinners now have.

One fellow at Mill *P* saw spinning rooms in Switzerland that looked as clean as ballrooms. He has Pneumafil on 20 frames but doesn't have any data yet.

A 10% yearly return on the investment in Pneumafil is figured by Mill *R*. There has been no apparent improvement in yarn cleanliness or quality. Ends down decrease right after scrubbing the steel rolls, but this reduction disappears in about two days because the flutes fill up. Waste will increase if not carefully controlled. Lapsticks and lapstick cleaning are replaced by cleaning and maintenance of the air tubes. Ends down caused by other ends are reduced but not eliminated. Power consumption for four frames is up about 1.12 kw.

Mill *S* also has only four frames equipped with Pneumafil. The mill notes no difference in yarn cleanliness, but ends down are lower. Flutes on the front steel rolls fill up except where the air pocket sucks the waste from ends that come down. Close supervision of spinners is necessary.

What Has Been Your Experience With High Spinning Drafts?

Yarn Number	Rpm. of Front Roll	Hank Roving	Type of Cotton	Ends Down per M Sp. Hr.	Top-roll Weighting	Cleaning Schedule	Changeover or New Frame
31s warp	107	1.00 & 1.25	1-in. M	Double apron—122.6 Single apron—85.8 Double apron—72.6 (vs. 35.2 on regular frames)	—	Top rolls, aprons, etc.—every 24 hr. Steel rolls, stands, etc.—every 6 mo. Knurled rolls inside aprons—every 2 mo.	Changeover Changeover Partial changeover
12.5s 13.5s	160 156	0.50 0.55	1 to 1/32-in. M & SLB	34	Front roll—27 lb. Back two rolls—13.5 lb.	Roll picking continuous—gets around at least every three days	New
110s	88	5.70	1 13/32 Egyptian	40	Spring type —	Not set yet	New
21s 25s 30s	133 125 114	1.00 & 1.50	1-in. M & SLMB	55	—	Use mechanical roll picker. Clean knurled rolls every 3 mo.	Changeover
22s	121	0.85	1-in. M	30.0 (vs. 29.9 on regular frames)	45 lb. total	Cradles cleaned daily with roller brush. Rollers and cradles cleaned every 3 mo. when steel rolls are scrubbed.	—
23s warp	125	1.00	1-in. M	Same	—	Not changed	Changeover
58s	115	3.00	Karnak	Normal	Lever system	Pneumafil and overhead cleaners.	New
31s	130	1.00	1 1/16-in. M	35	42 lb. total	Base and bolster rails and brushout guides cleaned three times per hr.; flat clearers picked every 24 hr.; revolving clearers picked twice in 144 hr.; scavenger rolls cleaned and backs, levers, and stands picked every 8 hr.; top rolls cleaned every 24 hr.; knurled rolls and aprons cleaned every 6 mo.	—

What System of Overhead Cleaning Do You Use?

Those mills that have traveling overhead cleaners are pretty well agreed that the unit should get around every 2 to 5 min., with most mills on the 5-min. cycle. Two outstanding exceptions to the above practices have a 25- and a 26-min. cycle. The mill with the 26-min. cycle doesn't even supplement with blow-pipe cleaning, but most of the other mills blow down either weekly or monthly.

Mills without traveling overhead cleaners blow down from once a shift to once a week. Daily blowing down is about average.

The concensus is that slubs are less frequent when continuous overhead cleaning is done.

Underframe cleaners are coming into increased usage. One mill says that the new cleaners have reduced the cleaning required by 20%. One problem seems to be with maintenance of the underframe units, but some mills aren't having any trouble along this line, particularly with the most recent models.

How Often Are Spinning Frames Overhauled And Rolls Scoured?

Yarn Number	Overhauling Frequency	Roll-Scouring Frequency
2s to 10s	1 yr.	6 mo.
3s to 8s	1 yr.	5 mo.
3s to 20s	1 yr.	4 mo.
3.4s to 9.5s	1 yr.	4 mo.
3.5s to 24s	48 wk.	24 wk.
6s to 26s	1 yr.	6 mo.
7s to 30s warp and 36s filling	10 mo.	10 mo.
8s to 24s	1 yr.	1 yr.
9s to 13s	1 yr.	7 mo.
10s to 24s	1 yr.	6 mo.
12s to 26s	1 yr.	6 mo.
12.5s	As necessary	4 mo.
13s and up	1 yr.	9 mo.
14s, 19s, 25s	10 mo.	5 mo.
16s, 20s, 30s	1 yr.	3 mo.
19.5s to 30s	1 yr.	1 yr.
20s to 26s rayon	18 mo.	8 mo.
—	1 yr.	3 mo.
—	1 yr.	4 mo.
—	1 yr.	4 mo.
—	1 yr.	9 wk.
—	7 mo.	7 mo.
—	1 yr.	3 mo.
—	2 yr.	4 mo.
—	3 yr	8 mo.

On Saco-Lowell-Roth Long Draft, What Do You Think of Synthetic or Rubber Long-Draft Aprons as Compared With Leather?

Thirteen mills answered this question, and nine of them are using synthetic or rubber aprons satisfactorily. Just about all types of coverings are being used on the slip rolls in the various mills. One mill has discontinued use of any covering on the slip rolls and has chrome-plated them to get favorable results.

As far as cleaning problems go, some of the comments were:

"Although the pencil rolls needed cleaning more often, the synthetic aprons stayed much cleaner. The aprons more than offset the pencil-roll trouble."

"On synthetic aprons, lint won't stick to the underside but will form next to the apron guide bar."

"Synthetic aprons don't collect lint as readily as leather aprons do."

The four mills that prefer leather aprons cited these advantages:

"We haven't found any synthetic aprons that give us performance as good as leather aprons."

"Synthetic aprons don't carry lint under the cleaner roll as well as leather."

"Synthetic aprons cause 'eyebrowing' at the sides over the nose bar."

"We had trouble with synthetic-rubber aprons rolling up between rolls and tearing off."

What Is the Maximum Roving Size To Run Single In a Casablancas-Type Drafting System?

Yarn Number	Draft	Frame Gauge (in.)	Ring Size (in.)	Hank Roving
3.4s	10.00	4 1/2	3	0.35
4s to 10s	—	—	2 1/4	0.80
4s to 14s	—	3	2 1/8	1.00
5.5s to 8s	—	4 1/2	3	0.60
6.75s	7.50	4 1/2	2 1/2	0.90
7.5s	15.00	3 3/4	1 9/16	0.50
8s	—	4	2 3/4	0.55
8s	8.89	3 1/4	2 1/4	0.90
9s	10.00	3 1/4	2 1/4	0.90
10s	11.11	3 1/4	2 1/4	0.90
11.5s	12.78	3	2 1/8	0.90
13s	14.44	3	2 1/8	0.90
14s	15.55	3	2 1/8	0.90
21s warp	16.15	3	2 1/8	1.30
24s	16.00	3 1/4	2 1/8	—
25s warp	14.70	3	2 1/8	1.70

What Has Been Your Experience in Keeping Antifriction Spindles Plumb and in Controlling Spindle Vibration Right After Doffing?

Five out of the six mills that replied to this question do not have any trouble with these problems. The one mill that has trouble keeping antifriction spindles in plumb reported that those particular spindles don't give any vibration troubles. This mill solved the vibration problem by putting a $\frac{1}{8}$-in. screw in the center portion of the spindle plug while plumbing. The screw caused the spindle to vibrate the same amount in all directions, and about the same center, and thereby eliminated the possibility of plumbing the spindle to one position of the blade in the bolster.

Viscosity of the spindle oil is being varied in Mill *H* in an effort to elimi-

nate spindle vibration.

Mill *I* found that the only way to keep spindles plumb was to tighten the base harder against the rubber washers in the base.

Careful attention to bolster wear has enabled Mill *M* to steer clear of vibration troubles. At overhauling time, all bolsters are removed, oil is drawn from the bases, and the bolsters are washed and inspected. If wear is equivalent to 0.003 in. in bore diameter at the top of the bolster, the mill replaces it. Mill *M* also considers the gravity and viscosity of the spindle oil important factors in vibration.

What Results Are You Getting with Ball Bearings on the Camshaft of Your Spinning Frames?

Three mills answered this question:

Mill *H*: ". . . they eliminate one possibility of dwell of the traverse at the top and bottom of the stroke and reduce ill-shaped packages."

Mill *I*: ". . . cannot see where they would pay, except on a replacement basis."

Mill *M*: ". . . on 518 frames and we're well pleased. Backlash on the builders has been eliminated, and tangled yarn has been reduced greatly."

TURNER R. SCOTT, general superintendent, Martha Mill, Silvertown, led the spinning discussion at the spring meeting of TOE of Georgia.

What Has Been Your Experience with Antifriction Top Rolls?

Five mills gave short answers to this question. Mill *C* believes that roll picking could be halved with ball-bearing front rolls and reports similarly good results with needle-bearing rolls. The shells began to slide off two sample rolls at Mill *E* after two weeks. Two other mills reported favorable results on a trial basis. Mill *I*, after two tries with ball-bearing rolls, is experimenting with needle-bearing rolls in the first and second lines.

Should Spinners Pick Their Own Rolls?

"No," said 16 out of 22 mills. Five mills think it is a good idea, however, and one other mill divides the roll picking—spinners clean top rolls and roll pickers clean long-draft rolls.

Some of the advantages mentioned by mills in favor of having roll pickers do the job instead of spinners were:

"Spinning is cleaner and more slub-free."

"Tailings are 4% lower since we separated the tasks."

"Rolls are cleaned on schedule—not when the spinners find time."

"It is better to use roll pickers if they are properly instructed and supervised."

"Fewer oily threads . . ."

"You get much better cleaning—and at a cleaner's rate. A spinner should creel roving, piece up ends, and keep her hands clean. She can run out guides, brush rails, clean lapsticks, and wipe backs; but the spinner should not pick rolls."

"Quality improved materially when we started to use roll pickers."

The mills that have spinners pick their own rolls, however, obviously think that quality is better when this procedure is followed.

Do You Use the Standard Snick-Plate Settings Recommended by Barber-Colman?

About half the mills that replied to this question are using the standard settings. Some mills, however, find that the standard settings are either too close or to wide for their requirements.

Here are several examples of snick-plate settings in Georgia mills.

Type of Snick Plate	Yarn Number	Winding Speed (yd. per min.)	Package Size	Percent Tailings
Standard	4.5s, 5.4s, 6.7s	750	—	10 to 15
Standard	7s, 8s, 9s	900	—	10 to 15
Standard	12.5s	1,200	5.31 hk.	—
Standard	21s warp	1,250	0.255 lb.	12
Breaker	10s to 17s	1,200	—	20
Breaker	16s	1,260	3 hk.	—
Breaker	21s to 30s	1,300	6 to 7 hk.	30
Breaker	30s warp	1,200	5.5 hk.	16
Breaker	31s	1,200	5.85 hk.	12
Breaker	—	1,200	0.21 to 0.42 lb.	16

What Procedure Do You Use In Overhauling Winders?

Type Winder	Overhauling Frequency	Who Does It
Foster 102	1 yr.	Overhauling crew
Foster 102	18 mo.	Fixer
Foster 102	—	Section men
Foster 102	No schedule	Section man
Foster 102	1 yr.	Overhauler
—	No schedule	Overhauler
Universal	1 yr.	Fixer

What Factors Affect the Number of Quills Required?

Answers: Yarn number
Style changes
Yarn colors
Battery size
Battery-box size
Type of fabric
Quills in can
Transportation cycle
Usage cycle
Yards per quill
Loom speed
Yarn conditioning
Loom efficiency
Method of stripping
Storage capacity
Number of looms
Number of spindles

(*Continued on page 217*)

J. H. CANADY, Montgomery Cotton Mills, Montgomery, led the discussion on carding.

NEW GENERAL CHAIRMAN, Henry Lanier, Cowikee Mills, Eufaula, is second from the left. At the extreme left is Ben H. Crawford, Southeastern Engineering Co., West Point, Ga., the secretary-treasurer of Alabama TOE. At the right of the picture is the retiring general chairman, J. W. Patterson, Tallassee Mills, Tallassee.

Alabama TOE Discusses Means To Higher CARD PRODUCTION

▶Here's a digest of the carding portion of the spring meeting of the Alabama Textile Operating Executives held at Alabama Polytechnic Institute, Auburn, Ala. The spinning part of the discussion was summarized in the July issue of TEXTILE WORLD.

Not Much Data on Higher Lickerin Speeds

Two mills gave detailed reports of success with higher lickerin speeds, and four others said that experiments were being conducted.

At Mill C, the lickerin speed was increased to 757 rpm. from 440 rpm. Neps per 100 sq. in. went down to 39 from 43, and there was no effect on breaking strength, sliver variation, or fly and motes.

At Mill A, the lickerin speed was increased to 582 rpm. from 427 rpm. Neps went down 2%, and waste went up, but there was no change in breaking strength or sliver variation.

Three Comments on Metallic Drawing Rolls

Mill M has one breaker frame and one finisher frame equipped with the new rolls. Average variation on the breaker is 21% now and used to be 24%. Variation on the finisher is better also—24% now against 26% before. Speed for both these tests was 133 ft. per min. Roll speed was increased to 160 ft. per min. with the same results.

(*Continued on page 209*)

Summary of Report on Larger Card-Sliver Cans

Cost of Change (per card)	Pounds per 14x36-in. Can		Other Savings
	Now	Percent Increase Over 12x36-in. Can	
$75.00 (including labor)	19	60	—
$45.00	17	50	Cards per tender increased 25%
$80.00 (including $20.00 for labor)	15.7	40	—
$66.50 (material only, not including can)	21	40	—
—	16	33	—
—	20	54	—
$95.00	18	28	Cards per tender and draw frames per tender increased

How To Increase Capacity of Present Card-Sliver Cans

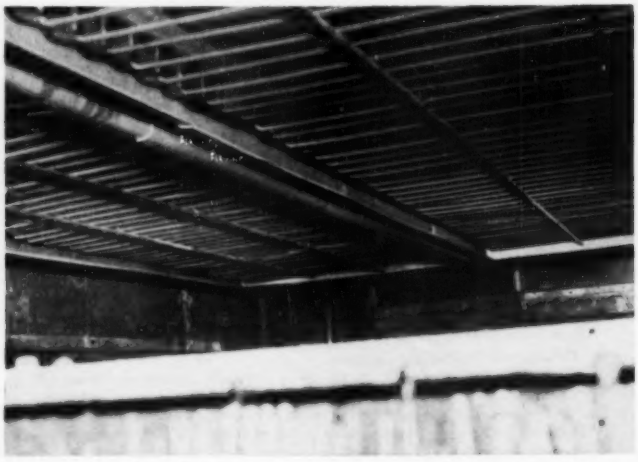
1. **Buy nylon trumpets.**
   Mill *T* did this, at a cost of $2.75 each, with no charge for labor to install them. The result: an extra pound of sliver in the can even though the can doesn't look as full as before. Very little difference was noted in sliver variation.
2. **Change can-table tube-gear ratio.**
   Mill *F* did this, at a cost of about $5.00 per card. From one to two more pounds of sliver is going into every can now.
   Mill *M* also changed the can speed and increased pounds per can from 11 to 13 at a cost of $7.50 per card.
3. **Put springs on the delivery roll.**
   Mill *L* did this, at a cost of $1.00 per card. Pounds per can were increased about 33%.
   Mill *M* also tried springs but found that a hard core was formed in the center of the sliver. Also, grooves were worn in the calender rolls on the cards.
4. **Install tongue-and-groove rolls.**
   Mill *M* did this; the cost was $12.00 per card, and can capacity was increased only ½ lb. per can.

TRICOT FABRIC IS SET to accurate widths at the rate of 16 ypm. by radiant heat by this unit in a mill of Native Laces & Textiles, Inc.

High-Speed TRICOT SETTING *Cuts*

▶ *A new radiant-heat nylon-setting unit at one mill of Native Laces & Textiles, Inc., has:*

- Cut finishing costs in half
- Speeded output to 16 to 20 ypm.
- Permitted setting of dyed goods

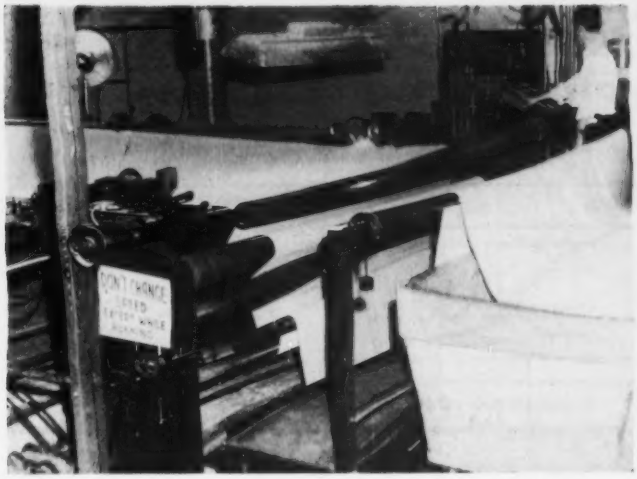


CALROD HEATING UNITS in the setting chamber provide a high concentration of steady, uniform heat.

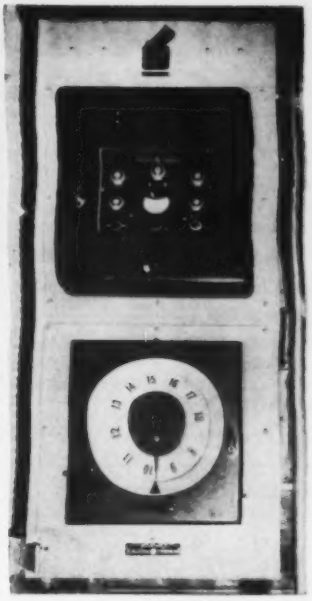
A NEW NYLON HEAT-SETTING UNIT of the radiant-heating type has speeded up nylon-tricot setting and cut costs in half at H. & F. Binch Co., Glens Falls, N. Y., a division of Native Laces & Textiles, Inc. The machine, made by McCreary Machine Works, Inc., continuously sets nylon tricot at the speed of 16 to 20 ypm.

The unit has eliminated half of the usual finishing operations that were formerly used for autoclave or gas-unit setting. In these latter instances, the fabric was tacked, scoured, untacked, tentered and set with the autoclave or gas method, tacked the second time, dyed, untacked, and finally tentered and dressed. With the electrosetting method now used, the following comprises the complete cycle: the fabric is tacked, scoured and dyed, untacked, and finally tentered and set. These savings in processing can be accomplished because it is possible with radiant heat to set the fabric in dyed condition. The labor saving is more than 50% because it is necessary in the dyeing and scouring operation to retack the fabric.

The unit sets dyed goods without streaks and with uniform color. Stop-spoilage is also prevented by the automatic stop mechanism that raises the heater when the fabric flow ceases.



ENTERING END of tricot-setting machine has automatic pinning and overfeed device.



TEMPERATURE IS CONTROLLED by this G. E. Reactrol system, a proportional-type temperature control that varies power fed to Calrod heating units.

Finishing Costs in Half

The unit has a temperature range to 1,500° F., though in actual operation, much less heat is required to properly set the nylon tricot webs.

Relaxed, wrinkle-proof, fully set fabric is produced. The unit includes an automatic pinning and overfeed unit; a tenter frame; upper and lower jet-type high-velocity ducts and the heating unit in the drying cabinet; and finally the setting cabinet ending up with the take-off, which includes the folding and batching equipment.

Uniformity of heat is electronically controlled across the tenter frame and prevents edge waste that could occur if the heating elements did not extend to the full width of the frame. Another advantage is the fact that any variation in "set" is prevented, as there is a total absence of forced air that blows heat and could result in temperature variation in different areas of the setting chamber.

The new machine consists of aluminum reflector units housing a G. E. Calrod tubular heater and was designed to be installed on existing tenter frames or built as an integral part of new ones. Automatic temperature control is provided by G. E. Reactrol, an electronic temperature-control unit that allows automatic stepless heat adjustment through thermocouples located in the reflector frames. Although 16 ypm. is the average machine speed, higher speeds can be achieved by the use of additional reflector units.

Cost of Operation Low

Among the many operating advantages of this unit found by the mill is the fact that the actual cost of operation is less than $1.00 per hr. Also, the width of the set fabric is constant, and dyeing can be done either before or after setting. In operation, further economies are realized as the radiant-heat method is continuous instead of batch. Since the material is set while still on the tenter frame, accuracy in width can be obtained.

The operator merely sets the Reactrol temperature-indicating controller to the predetermined setting temperature of the fabric, then pushes the button to start the tenter drive. The McCreary machine is electrically coordinated with the tenter drive to make the operation automatic. To prevent scorching, the reflector frames are designed to raise automatically if the flow of fabric through the tenter frame suddenly stops.

According to the producer of this unit, the machine has been designed with sufficient temperature range to treat other synthetic fabrics such as Dacron and Orlon.

What the Unit Does

This electrosetting method is a combination of high-temperature-alloy-sheathed G. E. Calrod tubular heaters and the Reactrol control that holds cloth temperature within critical tolerances. According to the mill, the unit provides extremely accurate and sensitive temperature control to such close limits that the temperature at the cloth is held within those tolerances allowable for the accurate setting of nylon tricot.

The unit provides a complete package consisting of framing, cabinet, automatic elevating device, exhaust blowers, radiant-heat units, and all control mechanisms.

The Calrod unit is composed of a helical resistance coil surrounded by highly compressed magnesium-oxide powder. This powder is a non-conductor of electricity but is an extremely good conductor of heat. The unit is enclosed in an Inconel sheath that allows operating temperatures up to 1,500°. The G. E. Reactrol system is a proportional-type temperature control varying the power applied to the Calrod units smoothly and auto-

(Continued on page 212)

Plan V-BELT DRIVES For Good Operating Results

▶ **Guesswork in fitting V-belts to a drive can be avoided by the use of data tables—**

▶ **Proper selection of belt and sheave sizes reduces belt failures and maintenance costs—**

▶ **Overloads, belt slippage, and production losses are prevented with use of the correct number, size, and type of V-belts.**

By E. H. HELLIWELL
Contributing Editor, TEXTILE WORLD

Table I -- Service Factors for V-Belts

Textile Machinery (roving, spinning, twisting, etc.)	1.2 to 1.8
Line shafts	1.4 to 2.0
Conveyors	1.0 to 1.6
Compressors	1.2 to 1.4
Fans and blowers	1.2 to 2.0

For severe loads use the higher service factor.

An additional factor of 1.2 should be used for line-start motors.

Table II -- V-Belt Selection

Horsepower	Velocity of Belt (ft. per min.)			
	1,000 to 2,000	2,000 to 3,000	3,000 to 4,000	4,000 to 5,000
Up to 2	Type A	A	A	A
2 to 5	B	B	B	A or B
5 to 10	B or C	B or C	B	B
10 to 25	C	B or C	B or C	B or C
25 to 50	C or D	C or D	C	C
50 to 100	D	C or D	C or D	C or D
100 to 150	E	D	D	D
Over 150	E	E	E	E

In several cases in the above table a choice of two belt sizes is possible. Drive or load conditions may require that the larger belt be used.

THE ENGINEERING DEPARTMENT of a New England mill recently installed several new V-belt drives. In doing the job, the engineering department tapped many sources for information to aid in the efficient selection, installation, operation, and maintenance of all their V-belt drives. The condensed copy of this information is given here and can be of value to other present and prospective users of V-belts.

Consult and follow as closely as possible the V-belt-drive supplier's horsepower ratings for the different cross-section sizes of V-belts and the recommended sizes of drive sheaves. The service factors, arc-of-contact correction factors, and other V-belt data furnished by the supplier are derived from laboratory tests and actual operation and will prove valuable as a basis for V-belt-drive planning.

Past experience on actual installations shows that it is poor economy (and very probably a source of future trouble and increased maintenance cost) to reduce the number of belts or the sheave diameters below those recommended or indicated. An increased number of belts or larger sheaves can be used, within speed limits, to prevent overloading of belts. The supplier's figures on the safe horsepower capacity of the V-belts are a good guide for proper selection.

Small Sheaves Wear Out Belts

Flexing of the V-belt over small-diameter sheaves causes distortion, generates excessive heat, and shortens belt life. The minimum-size sheaves recommended are given to prevent this sharp bending of the belt that results in belt deterioration and ply separation.

Avoid excessive V-belt speeds. It is recommended that belt velocities should not exceed 5,000 ft. per min. Diameters of driving and driven sheaves can be selected to keep belt speeds within this limit.

It is often desirable to keep the centers of the driving and driven sheaves as close together as possible. Consideration, however, must be given to the fact that when there is a large difference in the sizes of the driver and driven sheaves, the arc of contact of the belt on the smaller sheave is greatly reduced. This small contact reduces the transmission capacity of the belt; and the closer the drive centers approach each other, the greater the reduction in the arc of contact on the smaller sheave.

The minimum distance between drive centers should not be less than the diameter of the larger sheave. Whenever possible, the selection of part sizes should be made to correspond to the supplier's standard stock sizes.

How To Use the Tables

To apply the tables furnished for selecting V-belts and sheaves, first multiply the horsepower to be transmitted by the service factor given for the type and condition of drive in Table I. This corrected horsepower is used as a basis for selecting the proper type and number of belts.

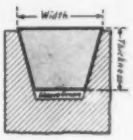
The belt velocity used in Table II need be only approximate and can be estimated from the speed ratio between the driver and driven sheaves. This velocity will be governed, in many cases, by the diameter of stock sizes of sheaves available; but neither

sheave of the drive should be smaller than the minimum size recommended in Table III.

The maximum horsepower of a single belt in Table IV is based on a 180° arc of contact with the sheave for each belt in the set. A difference in the size of driver and driven sheaves reduces the arc of contact on the smaller sheave and the driving capacity of the belt. This smaller value must be used in estimating the horsepower. The corrected value is obtained by multiplying the horsepower in Table IV by the correction factor corresponding to the arc of contact as indicated on the graph in Table V.

The total corrected horsepower required in the drive divided by the corrected capacity of each belt will give the number of belts of the selected type needed. Where a decimal part is indicated, the next largest whole number should be taken.

Table III -- Recommended Sheave Sizes



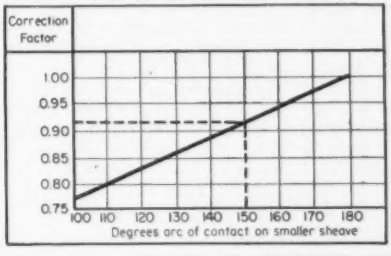
Belt-section type	Cross-section dimensions		Recommended pitch-diameter of sheaves	
	Width	Thickness	Min.	Max.
A	1/2(in.)	11/32(in.)	3.0(in.)	Keep small enough
B	21/32	7/16	5.4	to avoid belt
C	7/8	17/32	9.0	speeds over
D	1 1/4	3/4	13.0	5,000 ft. per min.
E	1 1/2	1.0	21.6	

Table IV -- Maximum Horsepower for Single V-Belts

Belt Speed (ft. per min.)	Type of V-Belt				
	A	B	C	D	E
1,000	0.9(hp.)	1.2(hp.)	3.0(hp.)	5.5(hp.)	7.5(hp.)
1,500	1.3	1.7	4.0	8.0	12.5
2,000	1.7	2.3	5.5	10.0	16.2
2,500	2.1	2.8	6.5	12.5	19.6
3,000	2.4	3.2	7.5	14.5	22.7
3,500	2.6	3.7	8.5	16.0	24.9
4,000	2.8	4.2	9.0	17.5	80.6
4,500	3.2	4.8	10.7	20.3	33.5
5,000	3.4	5.1	12.2	22.6	37.9

Horsepower values are estimated for 180° arc of contact. Adjustments must be made for the reduced arc of contact on smaller sheaves in a set. Horsepower multiplied by arc-of-contact correction factor equals corrected horsepower capacity per single belt.

Table V-Arc-of-contact correction factors



Arc of contact on the smaller sheave = $180 - \frac{60\,(D-d)}{C}$

D = Diameter larger sheave

d = Diameter smaller sheave

C = Distance-between drive centers

Install the Belt Properly

Check carefully the parallel arrangement of the driving and driven shafts and the correct alignment of driving and driven sheaves.

Make sure that the belts selected fit properly into the grooves of the sheaves so that the belts take the load at their pitch lines. Grooves that are too small cause the belts to ride too high and prevent proper seating of the belts in the grooves. Grooves that are too large allow the belts to ride too low. If the belts ride on the bottoms of the grooves, traction is lost and slipping occurs.

Rough side walls of the grooves or sharp top edges can cause rapid wear on the sides of the belts. If any unequal loading of the individual belts is apparent, the size and condition of the grooves should be checked.

Drives should be installed to allow the tensioning device sufficient scope for belt-slack take-up. Maintain sufficient belt tension to prevent slipping and probable belt burn, but avoid excessive tension that shortens belt life.

Avoid excessively high operating temperatures. If temperatures exceed 140° F. inside the belt guide, with lower temperatures in the surrounding area, openings should be made in the belt enclosure to provide better circulation for cooler outside air. For belts that must operate continuously in high temperatures, use heat-resisting belts. Prevent contact of belts with oil or abrasive dust that may injure belts or cause wear in the sheave grooves.

Good Maintenance Lengthens Life

When individual belts in a set do not stretch evenly, the variation in elongation will often cause one or more V-belts of a set to carry the whole driving load. This condition results in an overload on these particular belts and may require the replacement of the entire set of belts.

Save all used V-belts removed in good condition. It is often possible to match up a number of old belts of the same length to make a complete set for emergency use.

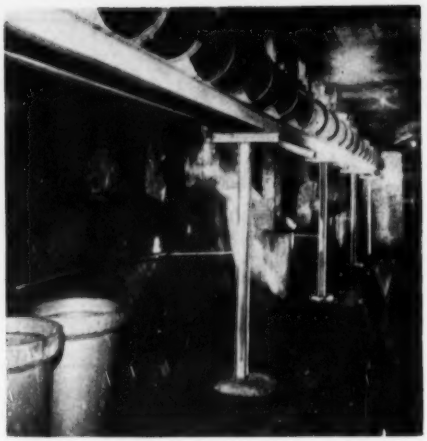
Check closely the setting and condition of the grooves of any sheave in a set that shows repeated early failures of V-belts. Some irregularity of the setting or the construction of the sheave may be the cause of the belt failure.

Regular inspection of V-belt drives will prevent many drive failures. This inspection will also reduce the cost of replacement parts. A record of drive inspections and findings will aid in detecting and correcting faulty conditions that tend to shorten V-belt life.

$40,000 Solves Dyehouse WASTE-DISPOSAL Problem

▶ **Mill disposal of acid and caustic dyehouse wastes solved with vitrified clay pipe. Collector line and wet well, located under the building, carry off 55,000 gal. of waste per 16 hr. Total cost was $40,000.**

By CLARENCE F. LAMB
Design Engineer, Waterman Engineering Co.



WASTE COLLECTOR LINE under the dyeroom floor is of vitrified clay pipe for resistance to acid and caustic dyehouse wastes. Open *T* connection in every other 12-ft. pipe section receives waste from machines on the floor above and acts as an overflow if the line clogs.

A $40,000 WASTE-DISPOSAL SYSTEM just installed in a Pawtucket, R. I., rayon dyehouse is handling 55,000 gal. of waste per 16-hr. day.

The nature of the wastes is as follows:

400 to 500 lb. of caustic
200 to 400 lb. of sodium chloride
2 to 4 lb. of sodium sulfide
10 lb. of sulfuric acid
10 lb. of nitrate of soda
100 lb. of soap and detergents
A small amount of phosphate used for water softening

The dyehouse has 10 dye vats that are dumped at least 10 times in 16 hr.

The $40,000 cost of this installation included preparation of the trench bed, mains, pumps, meters, etc.

Like all pollution-abatement systems, this system had to be tailored to existing conditions. The dyehouse, owned by Main Realty Co., is located immediately below a river dam. Dyehouse wastes that always had been dumped directly into the river had to be collected in the plant, lifted to a trunk line, and pumped to a State-owned disposal plant.

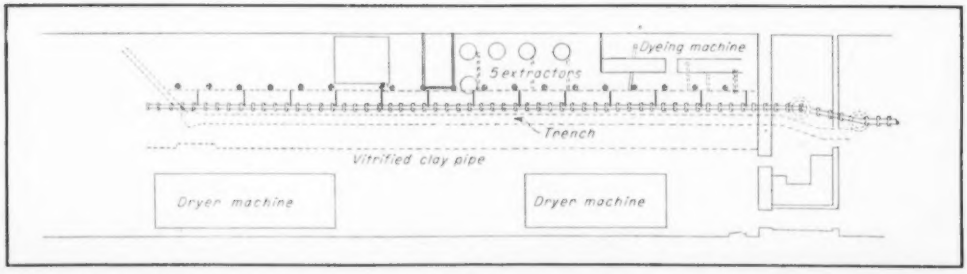
Until 1925, the dam was used to furnish water to operate water wheels in the mill; but power generated by this means proved unprofitable, and the water wheels were abandoned. Over the years the trench, 12 ft. square in cross section, had silted to a depth of about 6 ft. The water flowed in a direction opposite to that which any collector line for wastes could flow and still be within reasonable distance of the trunk sewer already built by the State to receive industrial wastes. Therefore, the trench from the dam into the plant was of little use as it was.

Units Located in Old Trench

Our problem of moving the mill wastes to the trunk line could have been easily solved if this trench could have been used as a collector line. Sufficient pitch could be obtained, but to build a wet well and pump all wastes to the trunk sewer through 600 ft. of force main and a lift of 90 ft. was too costly. However, to abandon the trench completely would also be extremely expensive.

Therefore, it was decided that a collector line and wet well would be built in the trench to collect all the wastes from the dyeing machines and sanitary equipment. Vitrified clay pipe was used as the collector line because of its resistance to acids and other dyehouse wastes.

(*Continued on page 218*)



THE CLAY PIPE extends the length of the machine area on the floor above. Ten vats dump 10 times each in 16 hr. to send 55,000 gal. of dyehouse waste through the pipe.

Six Things To Look for In Your TWISTER-RING GREASE

▶ Pick the right greases and you'll save headaches. Some pertinent factors to watch: flow characteristics, stability, film strength, ease of application, color. The mechanical application of grease will reduce wear of rings and travelers.

By T. G. ROEHNER, Socony-Vacuum Laboratories

TWISTER-RING grease plays a big part in determining the efficiency of your twisting process. Mills have to contend with thousands of combinations of travelers and rings, of heat and cold, and of yarn tensions. It's not smart to use the same grease for every one of these combinations.

A traveler exerts a large pressure on a ring, perhaps 10 lb. of centrifugal force for a 100-gr. traveler, and the heat this force produces can cause trouble. To keep the traveler from running dry, too fast, or too slow, you must have a grease of the proper type.

The foreman of twisting selects his combination of traveler and ring for a given operation after he considers the properties of the yarn, number of plies, traveler speed, and yarn tension. His rings may be grooved so that the grease will stay with the ring between doffs, or the rings may be plain.

The common greasing practice is to apply a small quantity of grease to the inner surface of the ring by hand. This greasing is done before each doff. But there has been increased exploration in the development of mechanical lubricators for applying grease to the rings at definite time intervals.

Excessive traveler wear and brassing of the rings results when travelers are run dry, and they run dry easily if hand lubrication is used. Mechanical lubrication costs more, but it results in distinct gains: savings in labor, increased traveler and ring life, lower grease consumption, and improved cleanliness of the frame.

Six Things To Look for

1

Flow properties. Flow characteristics are especially important, particularly when the grease is smeared on by hand. A grease that is too heavy will resist even distribution around the ring, and some of the grease will be sliced off and flung over the frame. As operating temperatures rise, the product should not flow too readily down the face of the ring or from the grooved surfaces. An inadequate flow of grease from the grooves will lead to difficulties such as ends down, deposits of grease on the yarn, and excessive wear. Flow characteristics must be right for each twisting operation if one application of grease is to last for a complete doff.

Changes in the grease structure as it is worked between the traveler and the ring may also lead to trouble. Change in structure occurs particularly when grease is long-fibered and "balls up." Some greases that appear to be short-fibered may acquire long, tough-fibered structures in use and may undergo marked changes in flow properties and resistance to throw-off.

2

Chemical stability. The chemical stability of a grease for this application is important, too. Unstable products tend to form black residues on ring surfaces. If throw-off occurs, staining of yarn may result. Furthermore, clogging of ring grooves may become a problem.

These deposits mean that stains on the yarn will be hard to remove. The scourability of such spots is less than that of new grease. The main cause of the difficulty in stained grease is not the oxidized grease but metallic elements directly traceable to wear on rings and travelers.

3

Film strength. Traveler wear can be markedly reduced if a film-strength-improving additive is used. The lubricant still must be brought to the face of the ring in sufficient quantity, but at that point film strength becomes important. Most twister-ring greases are essentially dispersions of soaps in mineral oils and/or petrolatums, but some products contain small amounts of free fatty material to reduce metal-to-metal contact.

4

Ease of application. If you decide to do your lubrication by hand, use a smooth, short-fibered grease, not heavier than No. 4 in consistency grade. Long-fibered greases are hard to apply without running the danger of using too much. If you put on grease mechanically, you shouldn't have any trouble using a grease of soft consistency unless oil separates from it readily. Separation may occur under pressure and filtering action.

Hard residual grease may build up in the equipment and retard or prevent the lubricant from getting to vital surfaces.

Some bleeding of the grease is not objectionable. Many mill men don't realize this fact and reject greases that have wet surfaces or bleed small amounts of oil.

Heavy-bodied greases containing petrolatum are at times not readily dispensed by mechanical equipment that is designed for use on twisting frames. If the lubricant is much heavier than No. 4, you may have trouble handling the grease, even if a follower plate is used. Regardless of the type of grease used, clogging of screens and small holes must be avoided by removing soap lumps and coarse foreign material.

5

Color. The color of a twister-ring grease is often considered an important characteristic. Some mill men believe that color is connected with objectionable and costly staining of yarn, but scourability is not always indicated by color. Not many years ago most twister-ring greases were prepared from white oils or white petrolatum. Today, however, off-white products are often used because they're cheaper. In most cases these greases are not very dark, but manufacturers of automobile tire cord have adopted greases prepared from dark-green petrolatum.

6

Odor. Often you'll get an objectionable grease odor in the twisting room, particularly if the frames run hot. So it's desirable that you pick an odorless lubricant for the job.

(Continued on page 229)

Your Key to Future Success—

The textile industry is entering a new era—that of the textile scientist. Everywhere in this industry men are using new electronic, statistical, and engineering tools to roll back the frontiers of hitherto unexplored areas of knowledge. Century-old concepts are being upset. Everywhere men are probing and digging—asking "How? Why? Where? How Much?" and "Who says so?"

But you don't need a string of degrees after your name to be a textile scientist. Nor does "research" imply scientific knowledge or working with test tubes and slide rules. The key is your belief in and attitude toward textile research.

This article explains why and how. It's a "must" reading for the man who wants to get ahead in today's and tomorrow's textile industry.

By WALTER HAMBURGER, Director, Fabric Research Laboratories

Mill men, for the most part, are not involved in the doing of scientific research. But among these men are those who will emerge as leaders of the future, responsible for encouraging, financing, and utilizing scientific research. For these men, the opportunities are unlimited. But their success will depend upon their beliefs in and attitudes toward scientific research. Both their beliefs and attitudes are vitally important to these men themselves, to their employers, to industry as a whole, and to society.

Let us first establish the definitions of some words that we all frequently use, but seldom consider in a truly applied sense.

Research: Studious inquiry; usually critical and exhaustive investigation or experimentation having for its aim the revision of accepted conclusions in the light of newly discovered facts

Critical: Of or pertaining to a critic or criticism. Analytical; thorough; exact

Exhaustive: Having the tendency to exhaust, as by thorough and complete discussion; covering all points or items, as in an investigation or discussion

Investigation: Systematic inquiry

Experimentation: Action or operation designed as a test, trial, or attempt

Conclusion: A conviction from inference. A practical determination; decision

When considered objectively, it becomes immediately obvious that research is not exclusively an activity reserved for the scientist or the engineer. Indeed, persons in any walk of life may, and do, conduct research, unwittingly perhaps, in the course of their day-to-day associations with their fellow men. Those of us who seek truth in our quest for accomplishment constantly engage in "studious inquiry; usually critical and exhaustive investigation or experimentation having for its aim the revision of accepted conclusions in the light of newly discovered facts." To express it more simply and succinctly, we strive to keep up to date in a complex and ever-changing society. We conduct research at an informal level.

To live and act intelligently—as researchers—we must not of necessity be scientists. To be successful, we must be "analytical, thorough, and exact" by means of "thorough and complete discussion (or consideration) covering all points or items. . . ." We must see to it that we consistently engage in "systematic inquiry" by means of "action or operation designed as a test, trial, or attempt."

Our prowess will be judged by the conclusions at which we arrive—our "convictions from inference," our "practical determinations," our "decisions."

For Success—Believe in Research

To achieve the major objective—success in the modern industrial race for technological supremacy—you must sincerely believe in research. Your actions must be research-oriented—your belief in the fruitfulness of research should be intuitive and unhesitant so that when faced with technical problems, you instinctively seek answers with an open mind and critical experimentation rather than with prejudice, opinion, and the mystical recantation of some prior art. You should not have to be persuaded to support research.

This statement does not mean that you should support research uncritically or that all research is either worthy of support or timely. Frequently political and economic facts may overrule the logic of a research program. Frequently the answers to industrial problems are not technical but are rather social in nature, such as a breakdown in production because of faulty human relations between labor and management. The fact remains, however, that the great industrial development of the present era is the brain-child of scientific research; and no industrial manager or engineer can compete successfully unless he is convinced and aggressive about research.

Research Is Like Insurance

No respected, capable business executive would ever dream of conducting his business regardless of economics or politics without the benefit of the protection afforded by adequate insurance coverage. To this end a wager is made by business with the insurance company on a basis of odds

Based on commencement address delivered recently at New Bedford Textile Institute.

Your Belief in and Attitude Toward Research

actuarially established. A company bets (at these odds) with an insurance company that it will have a fire and hopes that it will not; and with the solace gained from such a protective arrangement, puts its mind to the pressing problems of management.

In the case of research, intelligent business adopts a similar course. It establishes a research department or engages the services of a consulting research laboratory. The magnitude of the project in either case should be related to the economics of the business in such manner that the research is assured of continuity. The odds must obviously be properly established as in the case for insurance, since in this case the business wagers with the research laboratory that it will not succeed but hopes it will.

Both insurance and research are contemplated to relieve the burdens of a future rainy day. Insurance provides cash; research provides know-how in terms of sound scientific knowledge that makes possible intelligent practical operations, preparation to meet competition, keeping ahead of competition, product improvement, and product development.

These are not idle words. The textile industry has witnessed within its own ranks the advent of new fibers, finishes, and machines. It has as evidence of the value of scientific research, changes in methodology such as statistical quality control, engineering approach to fabric design, etc., all developing a "modern" industry from an age-old craft.

Attitudes Important, Too

So much for beliefs—now what should your attitudes be about science and scientists? Your attitudes are fundamentally as important as your beliefs, and, in essence, they are symbolic of the success or failure of an education to contribute the lasting marks of an educated man. Your attainments will depend upon the sincerity of purpose, the conscientiousness, and the enthusiasm of your professional efforts. Your attitudes must never be lost sight of, irrespective of the immediate job pressures. If your attitudes toward research are to be effective, they must be:

First—Imaginative:

You will inevitably be faced with the problems attendant to dealing with vast bodies of knowledge or the necessity for such knowledge. These areas will doubtless involve abstract concepts, many of which will be beyond your own actual experience. Yet, in your new responsibilities, it will be your duty to develop and retain the ability to appreciate the importance of applying new fields of understanding to your local problems. Not only must you develop this attitude; you must also impart your philosophies to your superiors as well as to your subordinates.

Don't forget—research, as broadly defined, has for its aim "the revision of accepted conclusions in the light of newly discovered facts." Keen imaginative powers are potent tools in achieving this aim. The road to achievement is often fraught with discouraging circumstances, but it must be remembered that any worth-while objective is rarely easily attainable. The apparent deterrents must be used only to further whet your imagination.

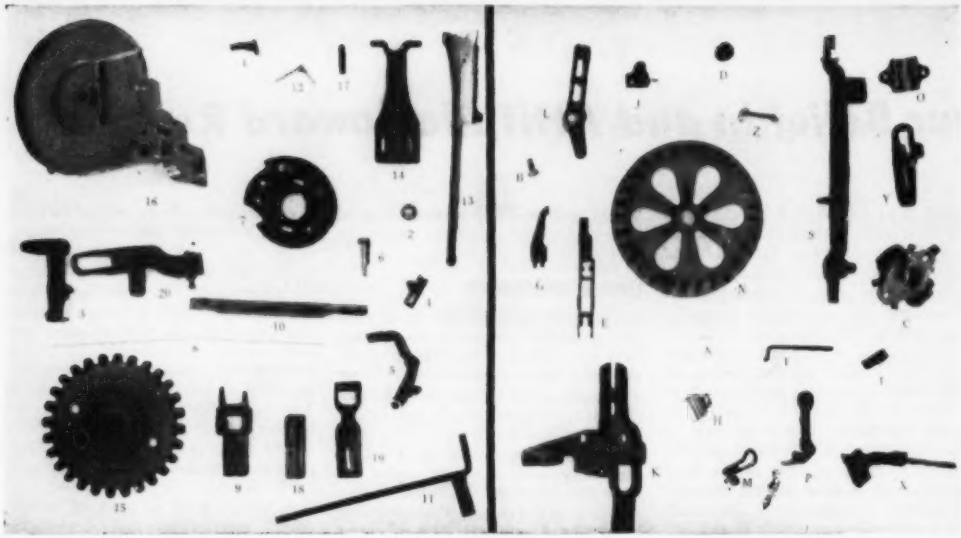
Second—Discriminating:

Science in all fields is developing at such a rapid rate that it is impossible to keep intimately in touch with all aspects of even one's own field. As a result, there seems to be a tendency to reject the possibility of ever being able to understand a sufficient portion of a given field or fields to be capable of being imaginative and capable of making intelligent decisions in research matters. This certainly need not be the case if you develop powers of discrimination. You may and should demand from any professional worker, whether he be scientist, engineer, attorney, or accountant, an interpretive explanation of the application of his work to the problem at hand. And it should be possible to obtain this interpretation in language intelligible to the uninitiated. If you are not successful in obtaining an answer in lay terms, your education should stand you in sufficient good stead to resolve the situation to one of intelligent communications. With a proper understanding of specific work at hand, you must apply an unbiased analytical viewpoint in judging the relevance of any field of science to your problem. You must discriminate between relevance and irrelevance, since unwarranted and irrelevant research has been the downfall of many a research organization.

Actually, from a practical standpoint, imagination and discrimination usually function simultaneously. As a concrete illustration, let us take the problem of predicting the mechanical behavior of textile yarns from a knowledge of the mechanical properties of textile fibers. For thousands of years, textile structures have been made "by guess and by gosh." While we all must pay tribute to the remarkable ingenuity and skills of textile craftsmen who have produced a breathtaking variety of useful and beautiful fabrics, craftsmanship has become inadequate in meeting the demands on textile use in our complex society. With the advent of two world wars, the tremendous growth in industry, a flood of new fibers, finishes, and processes, the need has become pressing for quantitative methods of predicting and engineering textile products. How?

If textiles are to be engineered, even as bridges and highways, then they must be first conceived as engineering materials, and subject to the same kind of mathematical treatment as metal, wood, or concrete. But we all know that textiles are soft, flexible, and porous, and are made up of millions of individual fibers. How can we imagine such structures behaving as a solid piece of wood or steel? Furthermore, many a qualified scientist may tell you that because of the multitude of fibers in the yarn, it is impossible to calculate how the forces applied to yarns are precisely distrib-

(*Continued on page 202*)



TEST 1

CHECK YOUR LOOMFIXERS' APTITUDE. Match the numbered parts on the left side of the sheet with the lettered parts on the right side. Score five points for each correct answer, and allow 15 min. for each test. The correct answers are on page 123. To get you started, the letter for 1 is *L;* for 2 it's *D;* and for 3 it's *F.* Two similar tests are on the following pages.

How Good Are Your LOOMFIXERS?

► Here's a test you can use to help select prospective loomfixers. Learners who haven't had any training, warp men, and smash hands will score about 15 to 40 on each test. Your best loomfixers will score 90 to 100, average fixers will get 75 to 85, and poor fixers will rate below 75.

By W. A. POWELL, Superintendent, Smitherman Cotton Mills

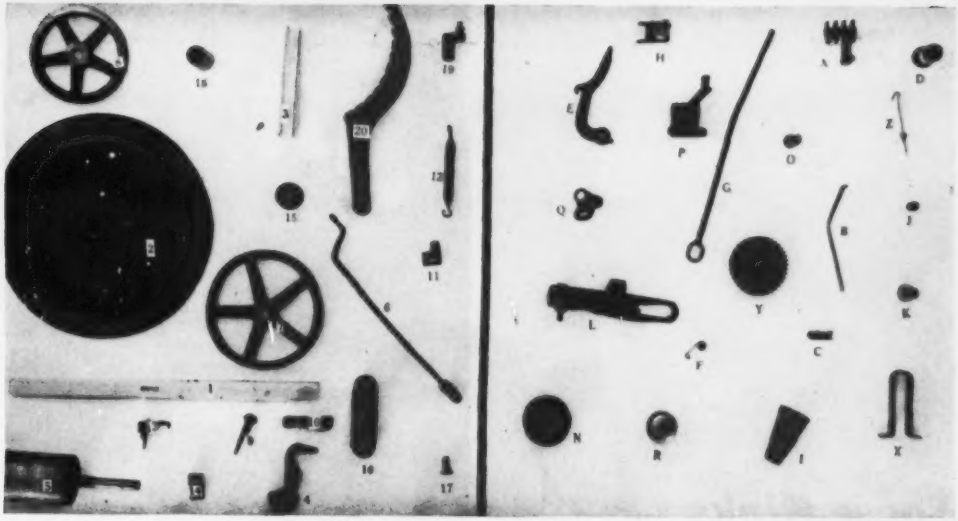
I'VE USED THIS TEST for several years to select loomfixers and prospective loomfixers. As a rule, men who have been working around looms as warp men, smash hands, etc., score 35 or better if they have an aptitude for loomfixing. Those men who would not make good fixers usually score 20 or less.

We also use the tests to see how we are doing in our loomfixing classes. After we have covered picking motions, for instance, we let the learners pick out and match up the parts we've studied. If they have really learned the mechanism, they will match the parts nearly perfectly. We do the same thing for each motion.

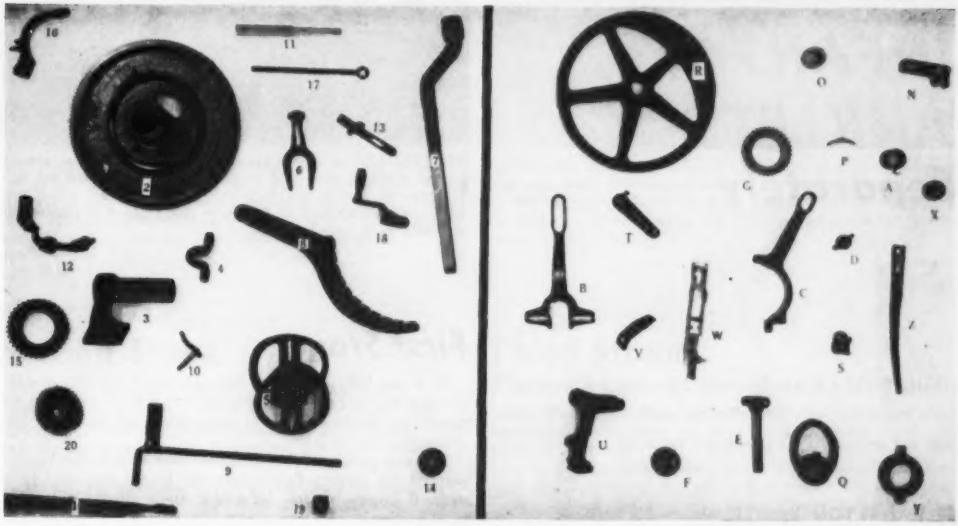
Here's How We Made Up Each Test

We laid out sheets with a black strip down the center. From a dismantled Draper loom, we placed a part on the left side of the sheet and numbered it. On the right side we placed a part closely related to the first part and lettered it. We put 20 parts on each side. Then we photographed the entire layout and had 10x6-in. prints made.

You can make up your own tests of this type. Our men like to take the tests, and we know that we get results from them. Try the four tests on this and the following pages. You'll be surprised how much you know—or don't know—about loom parts.



TEST 2



TEST 3

MAYBE YOUR SCORE can be raised if you take these three tests, now that you have the idea. You can make up as many tests as you need—these are just samples.

Answers to Loomfixing Tests

Test 1	Test 2	Test 3
1—L	1—Z	1—Z
2—D	2—Y	2—X
3—F	3—X	3—Y
4—J	4—O	4—N
5—M	5—P	5—O
6—K	6—Q	6—P
7—C	7—R	7—O
8—A	8—N	8—R
9—I	9—A	9—S
10—B	10—B	10—T
11—G	11—C	11—U
12—E	12—E	12—V
13—H	13—F	13—W
14—O	14—L	14—A
15—N	15—K	15—B
16—P	16—D	16—C
17—Z	17—J	17—D
18—X	18—I	18—E
19—S	19—G	19—F
20—Y	20—H	20—G

These Kinks Help Spalding Knit INFANT'S ANKLETS Separately

FIRST PROBLEM to overcome was a change in knitting to prevent damage to anklets when units were cut apart. Cutting apart was slow and required special care to prevent a cut into the looper line. Such careless damaging of the looper line made it impossible for the anklet to be looped.

HIGHLIGHTS: Costs down 4 to 5%—Knitter handles 15 more machines with less physical work—Worker's earnings are increased—Seconds are reduced.

By **E. DALTON WHITE,** McGraw-Hill Atlanta Bureau

PROGRESSIVE MACHINE IMPROVEMENTS brought about through ingenuity in design and application is enabling Spalding Knitting Mills, Griffin, Ga., to save between 4 and 5% in the knitting cost of infant's anklets.

Equally important is the fact that higher quality has been achieved. For the knitters the improvements have meant higher earnings and less physical work.

These improvements were made in two stages in solving a series of problems relating to production methods and knitting-machine operations. Each advance brought about better results, and studies are in progress to make even greater improvements in production as well as in quality.

First Stage

In string knitting, where tops are sewed on, the general practice was to cut the anklets apart and to allow a margin directly at the looper line of one anklet and the leg of the next one.

The big problem here was that many times the knitter allowed her scissors to cut into the looper line, and thus make it impossible for the anklet to be looped. The slip of the scissors sometimes cut into the leg of the anklet. Even with extra care it was not always possible to obtain a straight cut.

While fairly good results were obtained, it was felt that methods could be improved and the number of seconds and thirds could be reduced. At the same time the knitter would be relieved of the task of making a precise cut with scissors.

This is how the dilemma was solved, at no great expense or effort:

Spalding Mills decided to knit four courses of light yarn between the anklets. Then operators could quickly tear the anklets apart. The four courses would allow for a clean looper line, as well as even line for sewing on the top.

This method worked very well, and operations were materially improved.

KNITTING FOUR COURSES of 100s single yarn between anklets let the knitter tear the units apart quite easily. However, the singles yarn was so light that rough spots on a needle would cause a dropped stitch, which, at times, would carry over into one or more succeeding anklets before the yarn was picked up by the needle again.

INSTALLING AN INGENIOUSLY DESIGNED makeup attachment knits each anklet as a complete unit. At the same time a compressed-air line was installed in the top of the machine to automatically blow the anklet out of the machine into the wire basket mounted on the outside of the cylinder.

Second Stage

However, the 100s yarn used was so light that it was easily broken by rough spots on a needle or variation in tension. Dropped stitches resulted that even carried over into two or more anklets before the stitch was picked up again.

What had seemed a solution now presented a production problem.

Additional experiments revealed that one good solution would be to knit the anklet as a complete unit and eliminate the string method. This idea in itself would be a production improvement and make it easier for the knitter. But there were other problems to overcome in knitting-machine modification.

Shop personnel took over at this point and developed a makeup attachment that would allow the knitting of a complete anklet. This ingeniously designed attachment, an improvement over conventional types, allows four full courses to be knitted and the yarn to be dropped into the needles at least ½ turn quicker. This makeup yarn is later cut from the anklet when the top is sewed on.

Knitting a complete unit was a substantial improvement over previous methods. Production increased, and there was better quality and fewer seconds.

Third Stage

It was not long before the knitters found that the complete anklet was too light in itself to drop from the machine. Some jams resulted, and in some cases the finished work had to be "fished" from the machine. This failure of the anklet to drop out of the machine interfered with the knitting of the next anklet.

But it was not too long before an adequate solution was found. The answer was that if the anklet won't drop out by its own weight–blow it out with compressed air.

A branch line from the main compressed-air line was run down between each of two rows of knitting machines. A flexible line was then connected to each machine. A small copper line was fitted in the top of each machine and connected to the flexible line. Each machine was equipped with an air valve actuated by a thrust bar and controlled by a cam on the main drum.

When knitting is completed, the air valve opens and remains open for two to four courses. The released air blows the anklet from the machine. The anklet falls into a wire basket attached to the outside of the cylinder tube. The wire basket makes it easier for the operator to remove the anklet and also prevents oil from dropping on the anklet.

Tips on Carding and Combing of Wool-and-Synthetic BLENDS

▸ **Things to remember in processing synthetics—**

- **Bad carding will load the stock with neps**
- **Humidity must be controlled largely to suit the finish put on the fiber by the manufacturer**
- **Hot circles on combs can turn some synthetic fibers into a sticky goo**
- **Watch your dabbing. Most synthetics will pack instead of springing back as wool does**

By MICHAEL J. KOROSKYS
Assistant Professor of Textiles, Wool Dept., Lowell Textile Institute

For Good Carding—

Generally speaking, metallic wire is more satisfactory than flexible wire on synthetics and blends. The distance from the tip to the base on metallic wire is much less (about one-third) than on flexible clothing; hence there is less tendency to load up in carding. However, good results can be had on either type of clothing.

A single-cylinder card is usually sufficient to provide the amount of carding needed for the newer synthetic fibers. The main thing to watch is the amount of neps you create. With faulty carding, a terrific amount of neps can be created, so it is necessary to comb the stock to remove them.

Most of the synthetic fibers now come with some sort of finish applied in their manufacture, and additional oil should be applied with caution. The amount of oil is critical in carding, drawing, combing and gilling.

Since some of these fibers do not absorb moisture readily, any moisture applied will have to be held by the finish on the fibers. Too much moisture creates excessive drag of the stock during processing.

In handling any of these fibers in blends or in 100% form, you must remember that they will not perform in processing exactly as wool does. Therefore, some experimentation will be necessary.

Card Cloth -- Metallic
(With temperature and humidity considerably above that normally used for wool alone)

Roll	Diameter (in.)	Speed (rpm.)	Wire (threads per in.)
Cylinder	40	70	32-34
4 workers	1	5	24
4 strippers	4½	185	26
1st Lickerin	36	5	20
2 workers	6	4	24
2 strippers	3½	8	
2nd Lickerin	20	36	26
2 workers	6	4	24
2 strippers	3½	8	
Doffer	20	8	26-28

Gauge Settings

To Cylinder		To Lickerins		Feed Rolls (Fine)	
Workers	.32	Workers	.26	Top	.22
Strippers	.34	Strippers	.28	Bottom	.24

As an extreme case, a blend was made up of wool, dynel, rayon, Teca, Fiberglas, Orlon, nylon, Dacron, viscose, and as many of the experimental fibers as were available. This blend was carded on a conventional medium worsted card with flexible clothing with success and without undue difficulty. It was then gilled twice into uncombed top with an average unevenness of 13% and a maximum of 19% on the Pacific evenness tester. In this case, wool was about 8% of the total blend, with rayon making up the bulk of the blend.

One mill successfully running synthetics and blends uses set-up indicated in the accompanying table.

In Noble Combing—

Care must be taken with thermoplastic fibers. With their fairly low softening point, they can turn into a sticky mess if your circles are too hot. Since this comb depends on the resilience of wool for part of its sequence of feeding operations, help must be given these fibers in the form of air jets to obtain successful combing.

In dabbing, you must remember that when wool is dabbed down it is compressed into a small, flat area that opens itself up a bit so that there is less pin compression and easier drawing off by the drawing-off rolls. Some synthetics, when dabbed down flat, stay that way and cause a strong pull on the pins. This pull can cause binding and breaking of the pins. If you go to a coarser circle, you allow more neps to come through.

With the longer staple lengths, the speed ratio of drawing-off rolls to comb circle must be increased. The deeper you dab, the greater the fiber compression—since the pins are tapered—and the more trouble you will have in drawing off.

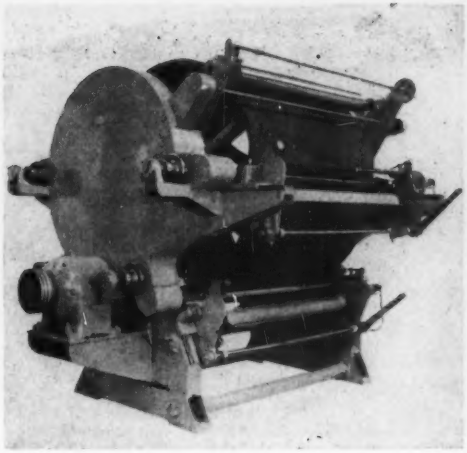
Oils used should be anti-static but should not gum up the pins.

Excessive dye will cause extreme drag and difficulty in running.

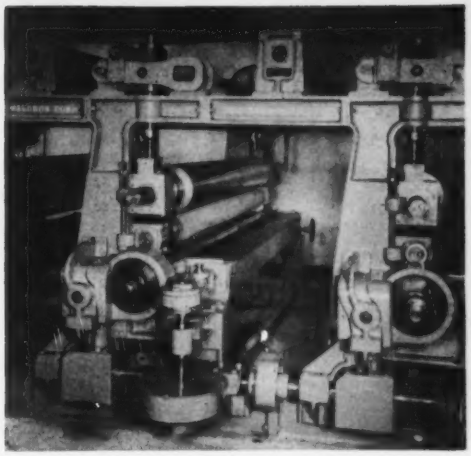
If you use cut staple (all one length) and have minimum carding breakage (with a modified card), you will find little stock in the small circles and may have difficulty in keeping up the end.

If you feed a somewhat lighter end

(Continued on page 214)



DRUM-TYPE GRAVURE PRINTER uses hot air circulation to hasten solvent evaporation and reduce danger of explosive concentrations.



UNIT PRINTER is better adapted for coated fabric than for film, because films lack enough dimensional stability.

Equipment and Technique Important In Decoration of COATED FABRICS

▶ Points to watch in the printing of coated fabrics are poor absorbency of the material, the rapid rate of drying, the ever-present fire hazard, surface condition of the coating, and the rate of drying of the inks used.

By THOMAS J. KERR, Coated-Fabrics Consultant

THE PRINCIPAL PROPERTIES that create differences in the printing of coated fabrics from ordinary textiles are the absorbency of the material, the surface characteristics, and the type of inks employed. These differences necessitate some modifications of equipment and major changes in techniques.

Fabrics are absorbent materials; coatings are not. When a printing solution is applied to the surface of cloth, it is absorbed by the fabrics and forced into the interstices. Printing lacquers remain on the surface of the coating and are not absorbed in any way. Ultimate adhesion of the print to the coatings results from adsorption rather than absorption, which is a considerable factor in the adhesion of the printing on fabrics.

The absorption of the solution into the fabric in textile printing permits the print rolls to be placed as close together as mechanically practical without danger of damage to the print applied as it passes under the next roll, even at high speeds. Print lacquer on a coated surface must dry sufficiently so that it will not spread or pick off before it passes under another nip.

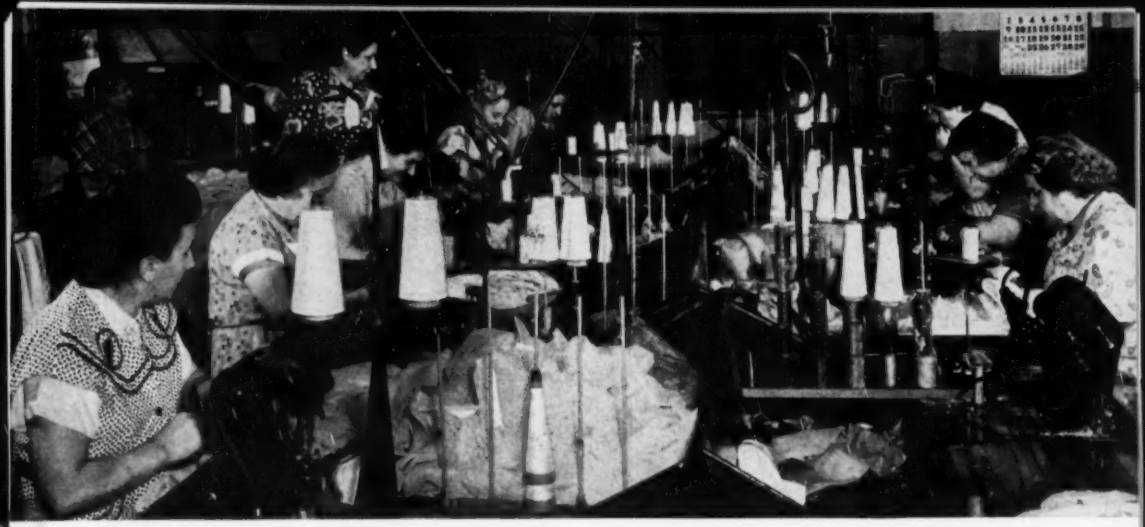
For the same reason, contact of the printed face with supporting rolls or bars must be avoided until the lacquer is set. To obtain reasonable production speeds in multi-color work, drying aids between nips are often helpful.

Since there is little absorption of the print lacquer by the coating, the engravings used are considerably shallower than those used for fabric printing. They are generally 40 to 60% of the normal depth, dependent upon the type of pattern and the opacity of the ink. Since the coloring must be obtained from a thinner deposit, a more opaque solution is required in many instances than with pigment colors printed on cloth.

The lacquers used for printing of coatings must be formulated to set as rapidly as possible to get sufficient drying between nips for maximum production speeds.

Applying the Lacquer

As a result of the rapid rate of drying, the lacquer will set up in the engraving almost immediately when the printer is stopped. Once dry, it is difficult to remove. The print lacquer is usually supplied to the engraved roll by one of three methods: one, by employing a pan in which a furnisher roll or brush rotates in the ink and transfers it to the print shell as in textile printing; two, by locating the doctor blade so that the ink can be poured directly on it and the angle that it makes with the shell will form



NO MORE LUBRICATION WORRIES. Sidele Fashions, Inc., of Philadelphia, manufacturer of women's rayon and nylon blouses, keeps 275 sewing machines in constant operation. The oil in use a year ago formed crystalline deposits which prevented lubrication and necessitated a lot of costly maintenance. The trouble was eliminated when the company changed to Sunotex.

FAST-MOVING PARTS PROTECTED BY SUNOTEX MACHINE OIL LIGHT

Sidele Fashions, Inc., uses more than 275 sewing machines in the manufacture of nylon and rayon blouses. Running at speeds as high as 5500 rpm, these machines require the finest of lubrication. But a year ago they were not getting it, and Sidele was concerned. The oil in use formed crystalline deposits which coated and hardened the wicks—preventing them from lubricating bearings and other fast-moving parts. Crystals also formed on the oil screens, in the oil lines, and at the bottom of the sump. Parts had to be replaced frequently, and every machine had to be torn down and cleaned completely several times a year.

A Sun representative, called in to study the situation, persuaded Sidele to run a 6 month test on Sunotex Machine Oil Light. This was done on an overlock stitching machine, which operates at the highest temperature of all the equipment in the shop. The results were completely satisfactory, and as a result Sunotex has been used on all 275 machines ever since. Though far less costly than the oil it replaced, Sunotex, because of its high chemical stability, does not form deposits. Consequently the wicks are always soft and all moving parts are kept well lubricated. The machines need only routine cleaning. Sunotex, in addition to being an efficient lubricant, scours out easily and completely when it is accidentally dropped on fabrics.

SUN OIL COMPANY, Dept. TW-8
Philadelphia 3, Pa.

☐ Please send me the booklet "Sunotex Machine Oil and Sunotex Machine Oil Light." ☐ Please have a Sun representative contact me.

*Name*_____

*Title*_____

*Company*_____

*Address*_____

*City*_____ *Zone*____ *State*____

TECHNICAL ASSISTANCE. Remember that Sun's engineers are at your service if you have a lubrication problem. It will pay you to utilize their broad experience.

UNINTERRUPTED OUTPUT. With the use of Sunotex, Sidele's production has never been interrupted by machine failures traceable to oil.

COMPLETE SCOURABILITY. Although far less expensive than the oil previously used, Sunotex Machine Oil scours out easily and completely.

SUN INDUSTRIAL PRODUCTS

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Printing Processes Are Varied

In the broad sense, printing includes such processes as photo-gravure, surface or intaglio, silk-screen, and block printing; as well as stenciling, hand-painting, and the application of decalcomania. All involve the application of a decorative design in a different shade or color from that of the base material.

Embossing includes texturizing by the use of matte or polished rolls or plates, as well as the imparting of a raised or depressed design.

Spanishing embraces the application of a contrasting color or luster coating in the embossed depressions while the tops are wiped clean. It can be done on a knife coater or by hand operation.

Topping is the application of a contrasting color or luster to the tops of an embossed design, leaving the valleys in the original color and finish. It, like spanishing, can be done mechanically or manually. In machine operation, the effect is generally produced by the use of an over-all engraved print roll.

Top-coating is the application of a thin matte, intermediate, or luster coating over the entire surface. It is often used to give the desired sheen to the surface, as well as serving to protect prints and other surface colors from abrasion. It can be formulated to be harder than the body of the coating since the amount applied is not great enough to have a major effect on the pliability. Thus it is useful in giving increased abrasion resistance and generally improving the serviceability of the coating as well.

Stitching, quilting, perforating, and similar operations are also important as methods of decoration but are usually applied by the fabricator rather than the coater.

a reservoir; or three, by rotating the shell directly in the pan of lacquer.

The first method has not proved too satisfactory since the felt on the transfer roll or the brush, as the case may be, is very difficult to clean if the lacquer should dry on it. Partially dried lacquer on the brush or roll can also cause small skins that are not immediately redissolved. These may catch under the doctor blade and cause scratches.

The second method is frequently used, but the lacquer feed must be carefully controlled to avoid excessive run-off at the edges, and there is difficulty in taking care of any lacquer in the reservoir when the machine is stopped.

The third process has been found to be the most practical, particularly if the printer is so adapted that the rolls can be dropped away from the drum and the rotation of the shells in the solution continued, thus preventing drying of lacquer in the engraving when the machine is stopped.

Another point to keep in mind is that the organic solvents used tend to swell and deteriorate rubber; so it has been found desirable to employ synthetic-rubber-covered backing rolls or blankets, specifically compounded to be resistant to these solvents.

Check These Safety Pointers

Lacquers in organic solvents present fire and explosion hazards not experienced in ordinary textile printing. This draw-back necessitates the establishment of operating conditions and practices that reduce these dangers to a minimum and insure the safety of the operation. For example:

1—It is desirable to locate lacquer printers in a separate building, or isolate them from other equipment by fire walls and automatic fire doors.

2—The immediate area must be clean and free of accumulated dust and lint.

3—The area should be well ventilated to avoid the accumulation of solvent vapors that might create an explosion hazard.

4—All machines, rolls, bars, and other equipment must be carefully grounded to eliminate the possibilities of static sparks.

5—Explosion-proof wiring and motors and vapor-proof lights should be used. If belt drives are used, the belts must be equipped with static brushes or other devices to bleed off static electricity as it is generated.

6—Lacquers should be stored and handled in closed containers.

7—Thinners should be stored and handled in closed containers and used from safety cans.

8—Only such quantities of lacquer and thinner as are necessary for immediate operation of the printers should be in the operating area.

9—While the amount of solvent evaporated is comparatively small when drying lacquer prints, the conditions necessary for the safe operation of drying ovens for coating, as described in a previous article in this series, should be observed if this method of drying is employed.

10—When transferring lacquer or thinner from one container to another, or where these flow from a pipe or spigot into a container, they should be grounded to each other to eliminate the build-up of static that might be created by the flow of the liquid.

11—Adequate fire protection equipment, of the proper kind to fight solvent fires, should be available.

Surface Condition Is Important

Adhesion of the print to the coating is dependent on the condition of its surface as well as the proper formulation of the lacquer. To obtain good adhesion, the coated surface must be clean and dry and must be so formulated that there is no surface exudation of soapy, oily, or waxy materials.

The manufacture of print lacquers is not recommended unless large operations are contemplated. The amount used is comparatively small, and the equipment required for its manufacture is not justified unless several printers are to be operated. Excellent vinyl printing inks are available from several different manufacturers.

Two Types of Printers Used

The drum-type gravure printer is especially designed for the printing of films and coated fabrics. Among other features, hot air is swept across the surface between the nips. This air aids in increasing the speed of drying in two ways. Primarily, it reduces the solvent vapor concentration at the surface of the print by sweeping away the vapors as they are formed, and the heated air tends to further increase the rate of evaporation. The system was designed and built by John Waldron Corp.

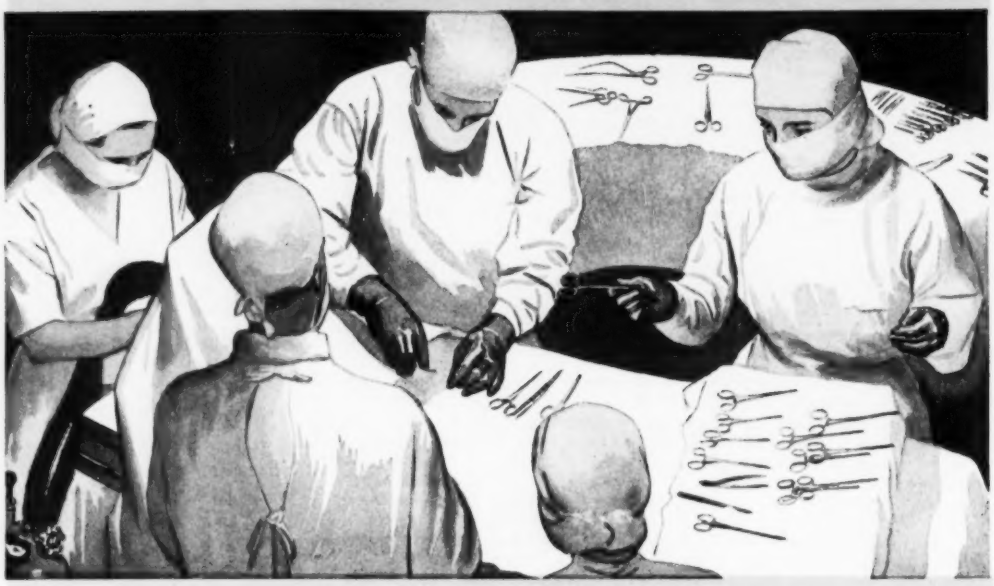
The unit type of machine is better adapted to the printing of coated fabrics than film since the tendency of film to stretch between units sometimes creates difficulties in obtaining registration.

The simple single-color printer that consists of an engraved roll running in a color pan, with a synthetic-rub-

(*Continued on page 210*)

Teamwork

"Wanted in Surgery . . . wanted in Surgery!" If there is one place where teamwork counts, it is in the operating room. Teamwork is vital — in surgery — in industry.



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5 Maintenance Steps For COMPRESSED-AIR Systems

To keep your compressed-air system working effectively and economically—

- **Determine how much air you need**
- **See that you have enough compressor capacity**
- **Locate your compressors economically**
- **Plan a good piping system**
- **Inspect the whole air system regularly**

By EDMOND C. POWERS, Compressed Air and Gas Institute

MAINTENANCE OF A compressed-air system should start with a well-planned and properly installed compressor and distribution system.

In the early days of compressed-air use, one small compressor easily handled the air needed for blowing off looms and frames. But as new machinery and air controls were added, these important factors had to be considered: (1) the volume of air that would be needed; (2) the type of compressor best suited; (3) the location of the compressors; and (4) the system needed to distribute the compressed air to the various parts of the mill.

1. Determine the Demand

Predicting what future requirements of plant equipment will be is extremely difficult. In most cases, it is safe to assume that present requirements will increase 50%.

The present requirement is the measured volume of air now being consumed. Caution must be practiced in measuring the volume of air used, for pressure drop in the distribution system increases as the demands grow. Leaks that develop periodically add to the demand before they are successfully run down; those possible leaks must also be considered in measuring the volume.

2. Check the Compressor

Once the demand has been evaluated, the next step is to check the compressor and settle on additional equipment. The tagged capacity of a compressor is not always the amount of air it will deliver. Delivery as well as efficiency must be checked. An old, inefficient compressor will cost twice as much to operate as a compressor in good condition.

Displacement is one method of checking the capacity. It can be quickly calculated for a double-acting, single-stage compressor by the following formula:

[(Piston diameter in inches)^2 × 0.785 × stroke in inches × rpm. × number of cylinders] ÷ 864 = displacement in cu. ft. per min.

This formula is approximate, since it disregards the piston rod, which is negligible. The piston displacement of a multistage compressor is the displacement of the first-stage cylinders. However, this displacement is never the actual volume of delivered air. The actual capacity depends on the volumetric efficiency of the compressor.

Checking the actual delivered capacity against piston displacement can be approximated by a single orifice method.

Connect to the storage tank an air valve (1 in. or larger) and a gauge for reading the changing pressure. On the discharge side of the valve attach a round orifice of ⅛- or ¼-in. dia. With the compressor running, open the valve and allow the air to escape through the orifice. The following table will give the cubic feet of air per minute escaping at different pressure readings:

Pressure reading (lb.)	Air escaping through orifice 1/8 in.	1/4 in.
20	10.1 (cfm.)	40.5 (cfm.)
40	12.4	49.6
50	14.7	58.6
60	16.9	67.6
80	21.4	85.7
100	26.0	104.0

This table is based on 100% coefficient of flow. For a well-rounded orifice, multiply values by 0.97. For a sharp-edged orifice, multiply by 0.65.

If the compressor is able to keep the gauge head at 80 lb. with a ¼-in. orifice, it is putting out 85.7 cfm. If, according to the displacement formula, the piston displacement is 126 cfm., the volumetric efficiency is 98.7 ÷ 126, or 68%. This efficiency can be checked against the original efficiency, which may be obtained from the compressor manufacturer.

3. Pick a Good Location

Several factors should be considered in deciding on a location for the compressors:

1. Locate the intake to obtain the coolest, driest, and cleanest air available.
2. Avoid steam pipes, escaping steam, and dusty or wet locations.
3. Provide proper screens and filters.
4. Protect the system from moisture.
5. Locate the compressors near the middle of the building to reduce piping.
6. Locate them near the machine shop so that a maintenance man is readily available.

4. Plan the Piping System

The maintenance of the distribution system can be substantially reduced through the careful installation and planning of pipes to the points of use. Pitch the pipes slightly in the direction of air flow to allow the drag of air movement and gravity to move all condensate to traps and water lags for frequent draining.

All hose lines and down pipes are taken from the top of the line, seldom from the bottom. A wide-radius bend for the take-off connections also reduces later problems. Hose and fittings are an integral part of a distribution system; therefore, their proper selection and use are important in saving air.

5. Check the System Regularly

The maintenance department should have a standardized routine for periodically checking the entire

(Continued on page 204)

STEEL
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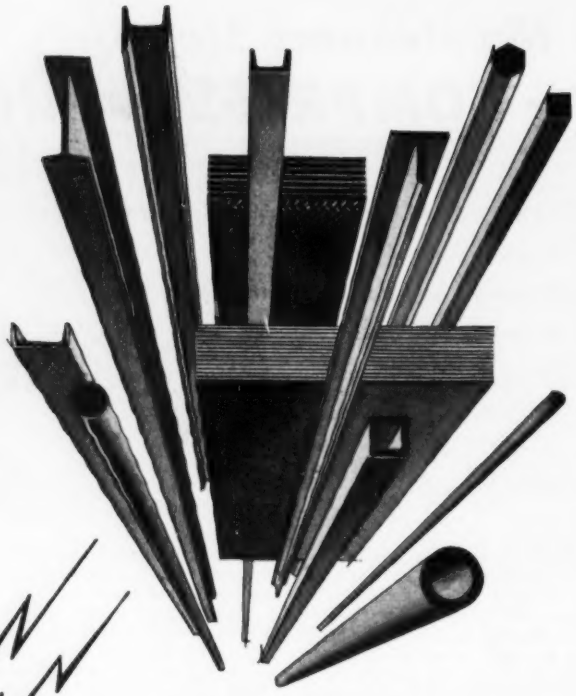

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What's Being Done About STATIC ELECTRICITY?

▶ From the mill man's viewpoint, static is a stepchild who must be lived with. Here are 15 questions—with today's answers. They may be different tomorrow.

By SIDNEY M. EDELSTEIN
Technical Director, Dexter Chemical Corp.

***AN ELECTROSTATIC SERIES** showing the relationships of various materials is explained to Joe Evans and Azel Mack by the author.*

1 What is static electricity?

We still have no better definition for static electricity than that which Brown put forward 300 years ago. Namely, static electricity is that force which causes the attraction of small bits or particles to an object after the object has been rubbed.

2 How does static develop in textile materials?

In textiles there are only two mechanisms of much importance.

The first important mechanism is *double-layer separation*. When any two neutral dissimilar substances are brought into contact, electric charges occur in pairs of positive and negative kinds. Negative charges, that is to say electronics, migrate to one substance, making that substance negatively charged; whereas the other substance, having lost electrons, becomes positively charged. We only become aware of the presence of these charges when the substances are separated. For then, if one substance is a non-conductor such as a textile fiber, the charges that it held become entrapped, and the fiber becomes negatively or positively charged.

The second important mechanism for the generation of static electricity is *friction*. If two neutral dissimilar substances are rubbed together, the negative charges are apparently rubbed off one substance and taken up by the other. On separation of the two substances after rubbing, the non-conductor, or textile fiber, entraps its charges and becomes either positively or negatively charged. If the other material is also a nonconductor it will have an equal but opposite charge.

Based on a paper presented before the Rhode Island Section, AATCC.

3 What troubles are caused by static in the manufacture of textiles?

1. Reduction of output
2. Lowering of quality
3. Increase in waste
4. Hazards to personnel

Each of these major problems is potentially present in most textile operations. They may exist in the blending and carding down through the drawing, sizing, knitting, or weaving, and even in the final operations of inspection and packing.

In the carding of woolen, cotton, and synthetic fibers, static charges can cause the fibers to load on the cylinders and may even prevent the fibers from forming a web.

During spinning, static electricity may cause the fibers to repel each other, thus producing uneven yarns. The yarn may be attracted to various parts of the machinery, thus causing broken ends, or it may be repelled from the guides, causing loops and breaks.

During sizing, the yarns may repel each other to give beams with the yarns badly aligned. During weaving, static electricity may cause lint and dirt to be attracted to the yarn, and this may accumulate on the heddles and drop down in one mass to be woven into the goods, thus causing seconds. Also, the warp yarns may repel each other to give an uneven weave, and static electricity may even prevent the filling yarns from coming off free from the shuttle, causing breaks and loom stoppage.

Finally, at the end of wet finishing, the fabric may emerge from the dryer with enough static electricity to resist folding, and electrified enough to draw up lint and dirt from the air or floor.

The potential troubles caused by static in textile manufacturing are almost endless in number. As we increase our operating speeds, and particularly as we use more and more of the new synthetic fibers, these potential troubles will become real ones.

4 How does static electricity in textiles affect the consumer?

The static problem from the consumer viewpoint has only become acute with the widespread use of synthetic fibers that began with the use of nylon, and more recently with the employment of Vinyon, Dacron, Orlon, dynel and other fibers based on synthetic plastic materials.

These problems fall into certain distinct groups, common to all the fibers.

First, there is the effect of static electricity in causing clothing to cling to the body under certain conditons, or to be repelled from the body under others. The important draping qualities and appearance of the fabric, or garment, are often completely ruined by the effect of static. The uncomfortable feeling to the wearer of the garment is obvious.

Unfortunately, a textile charged with static electricity has the power of attracting uncharged particles. Therefore, the static problem in the new synthetics has added the problem of dirt attraction. This is not only a

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A great many of our pleased customers have found that their results with STRIP-O-MATIC were even better than they had originally anticipated because difficulties in comparing STRIP-O-MATIC on the same basis with conventional clothing had kept STRIP-O-MATIC from showing up to its fullest advantage. Several times we found that users were comparing one stripping from STRIP-O-MATIC (after several weeks' operation) with one stripping of conventional (after only a few hours' operation). Even pound for pound on the basis of one stripping, STRIP-O-MATIC showed up better. A true comparison, however, requires that the time factor be considered. When this is done, it is quickly seen that STRIP-O-MATIC saves many, many pounds of wasted stock and at the same time, saves production time lost in unnecessary stripping. Yarn quality is also improved.

A NEW TEST PLAN DEVELOPED with the help of our customers, now makes it easy for you to keep your complete test records and prove to yourself quickly just how much you can save with STRIP-O-MATIC. A booklet provided for each of your cards equipped with STRIP-O-MATIC gives complete instructions and test procedures. Special forms arranged so that all the necessary information can be jotted down in a moment or two, lead into practically automatic calculators of comparative results. STRIP-O-MATIC operation compared to conventional clothing on the same fiber can be gotten very quickly.

Those of you who have already bought STRIP-O-MATIC and have not received this booklet, write today. IT'S YOURS FOR THE ASKING. Or ask your Booth representative to give you a copy. There is no obligation, of course. It's just another of Booth's services to help you achieve the best carding results possible.

OUR 60TH YEAR OF SERVICE • OUR 60TH YEAR OF SERVICE

WHAT THE TESTS SHOW: One of the country's leading carpet manufacturers reports runs of several weeks with all color lots being run complete without stripping. With conventional clothing, stripping had been necessary every 17 to 20 hours of operation.

Spinner saves $1,146 in one run with STRIP-O-MATIC: A prominent Canadian yarn manufacturer running cashmere achieved a net saving of $1,146. in actual saving of fiber only, in an 8 day run with STRIP-O-MATIC as compared with conventional clothing. This is admittedly unusual but shows the savings possible with a high priced fiber.

Runs to 9 months without stripping . . . . is a record achieved by a Philadelphia nylon spinner. With conventional clothing, stripping was required every 2 to 3 weeks on an 8 hour shift, weekly or oftener with a two-shift operation.

Cuts stripping waste by two-thirds . . . . reports a prominent woolen manufacturer, running fleece, top and synthetics.

PERFORMANCE RECORD: A finished card with conventional clothing ran 24 hours, stripped 2 pounds of waste. A finished card with STRIP-O-MATIC ran 12 days, 24 hours per day, stripped 6 oz. Carding was excellent, good web, no fiber damage. Saving in fiber only was $170. on one finisher in 12 days.

Reports of "IMPROVED YARN QUALITY," "LESS FLY," "GREATER PRODUCTION," "LESS SHRINKAGE," "GREATER STRENGTH," "EASIER STRIPPING," are becoming almost routine as more and more spinners switch to STRIP-O-MATIC.

We sincerely believe that you, too, will find STRIP-O-MATIC profitable in your operations. Feel free to call on us for complete information and help in your carding problems without obligation.

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problem for the store in displaying an article made of one of the new synthetics but it is certainly an unpleasant condition for the consumer who buys a suit made of a new synthetic fiber because of its stain resisting properties, only to find that his suit attracts all the soot and lint in the neighborhood.

5 What are the conditions for preventing static build-up in textiles?

There are two obvious answers to this question, and these are, either neutralize the charge as soon as the charge is formed, or conduct the charge away as it is formed.

Now, many investigators have studied the charges developed when common solid substances, including various fibers, are rubbed together. They have arranged these substances together into a so-called electrostatic series. This series is made up so that when any substance is rubbed with a substance lower in the series, the one lower in the series will develop a negative charge and the one higher will develop a positive charge. This electrostatic series is in fairly good agreement from one investigator to another. A typical electrostatic series, recently published, lists the items as follows.

POSITIVE END

glass
human hair
nylon yarn
nylon polymer
wool
silk
viscose rayon
cotton
paper
ramie
steel
hard rubber
acetate rayon
synthetic rubber
Orlon fiber
Saran
polythene

NEGATIVE END

As an example of how this series works suppose we choose nylon. From this series, if nylon comes in contact with glass it will develop a negative charge, but if it comes into contact with rubber, steel, or any of the other substances below it in the series, it will have a positive charge.

Therefore, the one obvious way for neutralizing the charges built up in nylon would be to impregnate the nylon with some material that would be very much lower in the series, and that when in contact with rubber, steel, or other materials would develop a negative charge. In this way, suppose the treated nylon yarn or fabric were passed over rubber or steel rolls, or over both. As a positive charge developed in the nylon, a negative charge would develop in the impregnating material and these would neutralize each other. Theoretically, such a mechanism is sound. Practically, the actual use of this mechanism is only in its infancy, but it will become more important pending our increase in knowledge of the subject.

The other mechanism for preventing build-up of charge involves bombarding the textiles with charges opposite to that of the charges being built up in the textile. This mechanism is theoretically simple but difficult to control.

Radioactive materials can be used as a source of either positive or negative charges. Since certain radioactive materials cause an ionization of the air into positive and negative particles, it therefore becomes necessary to have a radioactive substance close enough to the textile, and sufficient strength to furnish enough ions. Whether the fabric tends to develop positive or negative static electricity is unimportant, for the charges developed in the fabric will draw to itself the oppositely charged ions in the air and thus become neutralized. While theoretically, radioactive substances could actually be incorporated in the fiber, or in the fiber finish, it is still a moot question as to whether the presence of enough radioactive material in a textile from the static prevention viewpoint would be strong enough to cause harmful effects to the users of the textile.

It is theoretically possible to blast the textile fibers with ions from high-voltage discharge sources. These ions will have a charge opposite to that developed in the textile and thus the charge in the textile will be neutralized and no charge can be built up. Obviously, these theoretical mechanisms, while interesting, can only be brought into use under certain very special practical conditions.

6 Under what conditions can static electricity leave a textile?

First, let us consider grounding. If a charged fabric is grounded it must sooner or later lose its charges. Unfortunately, however, textiles are inherently poor conductors, and those that develop static electricity to the greatest extent are the most non-conducting.

So obviously, while grounding a textile is a theoretical technique for removing charges, it can mean nothing unless the conductivity of the textile is changed by treatment so that it can quickly conduct a charge to the ground.

Secondly, we have the mechanism of discharge of static electricity to the atmosphere. This discharge, of course, is related to the humidity of the atmosphere, the presence of gases and other substances in the air, and most important to the surface conductivity of the textile. This latter property will be discussed later when we discuss chemical and anti-static agents.

Suffice to say, paths for removing charges from textiles are available. Our problem is to make use of these paths.

7 Can the static problem be controlled by humidity regulation?

Our first answer to this is "Yes," for obviously cotton has been spun and woven under humidity conditions high enough to control the static problem for a very long time.

First we must examine the theoretical part that humidity or moisture in the air can play in its effect on static electricity. To examine this problem more clearly we must separate our textile fibers into those that are hygroscopic and those that are not.

In the case of the fibers that are hygroscopic, the amount of moisture in the air will govern the amount of moisture in and on the fibers. This moisture itself, in contact with the fibers, has a definite amount of conductance that assists in the removal of electric charges to ground and to the atmosphere.

There is an additional effect with higher humidities, for a high humidity actually improves the ability of the atmosphere to take up electric charges from the textile.

In the case of non-hygroscopic fibers we have only the effect of high humidity in improving the power of the atmosphere for conducting away charges. There is little improvement in surface conductivity of these fibers unless the humidity is so high that the point is reached where there is actual condensation of moisture on the fibers. Under such conditions the presence of foreign matter on the surface of the fiber in contact with the water may actually add some conducting power to this surface-condensed water so that there is some surface conduction. This conductance, however, is very small compared to the surface-conductivity changes encountered with the hygroscopic fibers.

Finally, there is a certain range of humidity where a reduction below this

(Continued on page 226)

SCOURING open-width COTTON PIECE GOODS

Scouring open-width cotton piece goods in caustic boil-off before dyeing is one of the many important stages in textile processing where Santomerse No. 1 gives excellent performance as a detergent and wetting agent.

As a matter of fact, Santomerse No. 1 serves the textile industry across a broad front. It aids in giving fabrics a good bottom . . . assists in level dyeing . . . reduces crocking . . . prevents formation of insoluble metallic curds which cause spotting.

Santomerse 80 is also an effective scouring agent. Some mills prefer it since it represents a savings on the basis of active content. This is particularly true of mills where storage and handling are prime considerations.

For detailed information on Monsanto detergents and wetting agents, contact the nearest District Sales Office, or write MONSANTO CHEMICAL COMPANY, Phosphate Division, 1700 South Second Street, St. Louis 4, Missouri.

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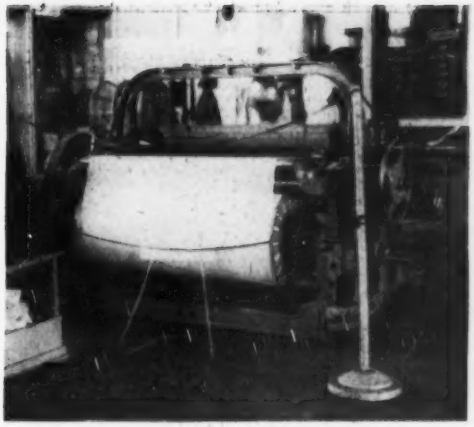
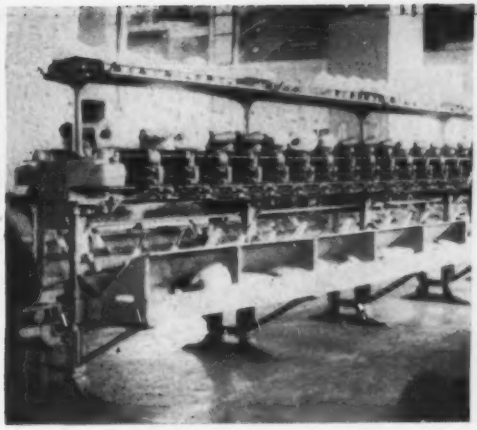


NORTHROP-TYPE AUTOMATIC LOOM had claimed speed of 200 to 220 ppm. over a 40-in. reed width. Bobbin is 6¾ in. Stop motion is mechanical. British textile man's comment was, "It seems inferior to current Japanese looms." Drive was by three V-belts from electric motor. Pick counter was for three shifts. Other motions were standard.



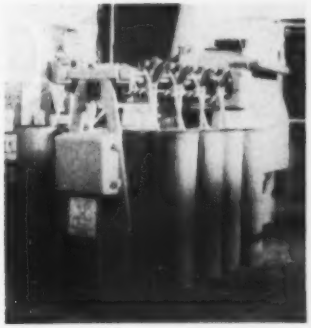
WINDER has 400 to 500 yd. per min. speed and has a knotter on each spindle. Knotter is similar to latch hosiery needle with a cutting edge inside the hook. A conveyor belt removes empty bobbins. Traverse is 6¼ in. Each drum has individual motor. Cones used have 2¾-in. base and are 1⅝ in. at top.

Here's a Look at Russian Textile Machinery

▶ We weren't supposed to, according to the Russians, but through McGraw-Hill World News, TW got a peek behind the Iron Curtain and picked up this information in Russian textile machinery.

By **GORDON GRAHAM,** McGraw-Hill World News, Bombay, India

How This Story Was Obtained—The press was excluded from the Russian textile machinery exhibit at Bombay, and taking photos was strictly forbidden. But McGraw-Hill's Gordon Graham posed as a possible buyer and went along with a British textile technician to get first-hand information. He got the photos, too, with a miniature camera.



LAP WINDER had no special features and was of moderate quality, according to British textile technician who viewed it.

FOUR SPECIMENS of Soviet spinning, weaving, and preparatory equipment were displayed in the Russian pavilion that dominated the International Industries Fair held recently in Bombay, India. Machines shown were one sliver lapper, ($3,100); one high-draft cotton-spinning frame, ($6,000); one high-speed winding machine, ($5,400); and one automatic loom (Northrop type) ($1,200).

The pieces displayed, according to textile experts in Bombay, are not far below and in some instances equal to Japanese and British standards of quality. Prices do not involve currency difficulties, as the Russians are prepared to accept payment in almost any currency, including Indian rupees.

The Russians had no printed price list or catalogue. They were very anxious to know how their prices compared with the British, Japanese, and American and seemed prepared to lower them, in order to undercut capitalist competition. It was reported, for example, that they had sold one Northrop-type loom for $1,000 although they quoted $1,200 to others.

The demand for textile machinery in India at the moment, however, is not great, and so far as can be ascertained no substantial business was booked. Indian buyers want to know more about production performance and wonder how they will obtain spare parts if they buy Russian machinery.

Official Rusisan information on the exhibits was limited by the fact that the Soviet textile experts in attendance spoke only Russian. Some literature in English was available, but most of it referred to equipment not on display.

About the only interesting point

(*Continued on page 225*)

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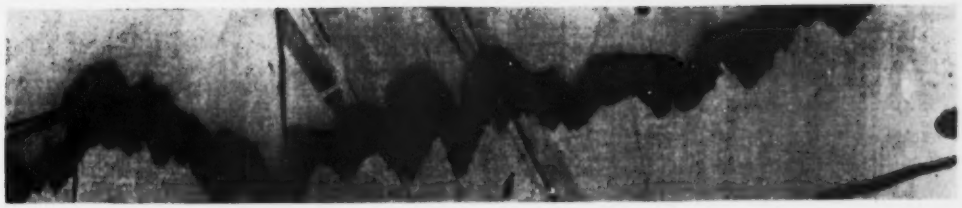
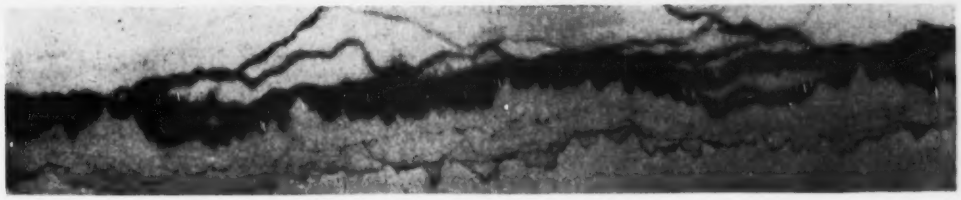


On Window Curtains . . .



and on Airplane Cloth . . .

The Brown Line Is Destructive

▶ A study by the National Bureau of Standards of degradation of cotton and other cellulosic fibers due to the effects of evaporation during storage shows the importance of drying goods before storage—and keeping them dry.

▶ Apply this knowledge in your plant and save money.

WHEN WATER EVAPORATES from cellulosic cloth, a brown line is often observed at the boundary between the wet and dry areas. Recent studies indicate that this "brown-line effect" may contribute significantly to the degradation of cellulosic fibers during production, processing, and use. From the data, it appears that continuous evaporation of water at the boundary line causes the cellulose in the cloth to oxidize at ordinary temperatures, with consequent weakening of the material.

The National Bureau of Standards' study of the effect of moisture was concentrated on the boundary between wet and dry areas because weakening is especially rapid there. Such boundaries form when water rises in cotton by capillary action or when a drop of water falls on the dry cloth. The brown line is frequently seen on window curtains that have been wet at one end by rain, or on cotton that has dried faster at one place than another during laundering or processing.

Brown-line experiments, in which one end of a strip of fabric was kept immersed in water under controlled conditions, were carried out at room temperature. In general, several hours were sufficient to produce a distinct yellowish-brown color at the wet-dry interface. The brown line could be produced in viscose rayon, filter paper, scoured cotton, and bleached cotton. It was found to consist of a fluorescent, water-soluble material.

The rate of production of the brown material was remarkably constant. A commercially bleached, sizing-free alcohol-extracted print cloth was found to produce about 2 mg. per day per linear foot of interface. This rate was the same whether the experiments were run in the dark, in the diffused daylight of the laboratory, or in the light from a tungsten incandescent lamp.

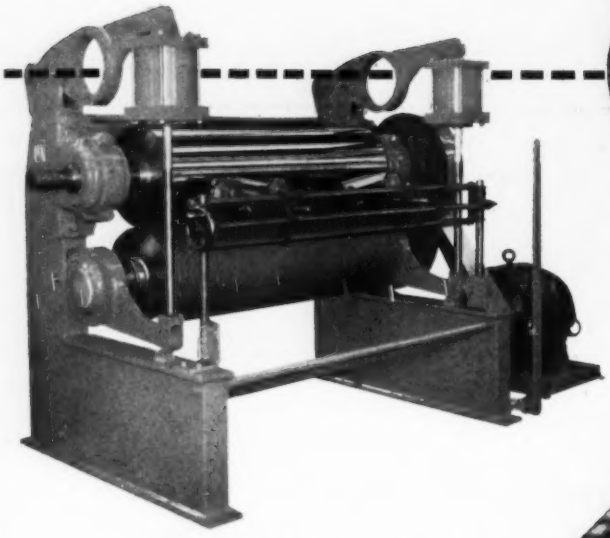
Other experiments showed that the water-soluble brown material could be extracted from fabrics subjected to other types of degradative processes. For example, significant amounts of the brown fluorescent substance were produced in cotton cloth weathered out of doors for 6 mo., or heated in the dark for 10 days, or exposed to radiation from a carbon arc for 6 hr.

To investigate the possibility that the brown substance might have already existed in the fabric and subsequently concentrated at the interface, a sample of cloth was alternately exposed in brown-line experiments and water-extracted over a period of 8 mo. As no decrease in rate of formation of the extractable brown substance was observed, it was concluded that the brown material is formed at the interface by a chemical change in the cellulose. The possibility that the brown line could be produced by iron or other inorganic constituents of the material was ruled out by the results of spectroscopic analyses.

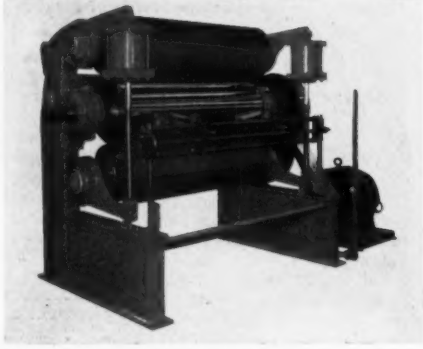
Further chemical study of the brown-line substance indicated that oxycellulose of the mildly reducing acidic type is formed. The oxidation appears to occur in part at the primary hydroxyl group of the cellulose molecule. Polyglucuronic acid is first formed, after which the chain breaks into soluble, low-molecular-weight fractions.

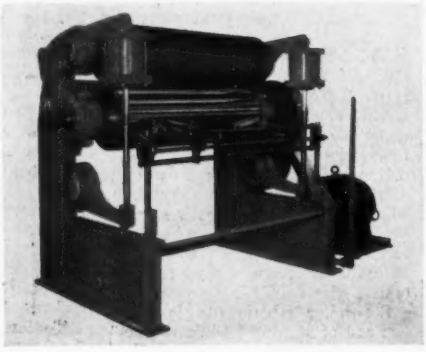
Other workers have found that small amounts of a soluble reducing substance are obtained by repeated extraction and drying of pure cellulose. This reaction may be similar to the brown-line effect. Numerous other phenomena of industrial importance — such as the unexplained spots observed in the brownish areas that appear on goods during shut-downs in textile finishing plants— may well be caused by a similar reaction.

Condensed from a report entitled "Effect of Moisture and Ozone on Cotton Textiles," National Bureau of Standards, Technical Reports Section, Washington 25, D. C.



The third roll may be added to this COOK CONVERTIBLE PADDER at any time. When your plans require flexibility, remember that Cook's *middle roll drive* allows you to convert between a 3 roll and either a top or bottom 2 roll padder. Even with three rolls in place, the top roll can be automatically held up for a two roll operation.* The middle roll drive eliminates a chain drive to the top roll, so either top or bottom roll can be buffed without buffing the other, as differences in the diameters will not effect the equal nip. The rolls are not crowned; even on 120″ faces, Cook rolls will not break or deflect. The frame is rugged, spherical bearings are self-aligning, pans are supplied in a variety of styles. If a convertible padder could solve one of your problems, write us for more information about 5, 10 and 15 ton machines with pneumatic, microset or lever-set pressure controls.





Cook P&N

COOK-P & N MACHINE CO., INC.
365 DORCHESTER AVE., BOSTON 27, MASS.

*Patent applied for.

Pointers FOR SUPERVISORS

Whose Rules Do Employees Follow?

Employees form strong bonds between themselves, forcing management to deal with groups rather than individuals. Employers must face this problem and try to understand and correct the situation.

By J. E. GARDNER
Asst. Director of Personnel Research, Fieldcrest Mills

IT IS OFTEN PUZZLING to a supervisor—particularly a new one—to find employees acting in a manner of which he disapproves. The employee who steps out of line should "know better," according to the supervisor's way of thinking.

Company Policy

A company gives its employees ample information on how it expects the employee to behave. There are rules of discipline, safety rules, production standards, quality and waste standards, etc. The employee may not know all the details, but he is usually familiar with the company policy.

Why, then, will an employee violate rules or, even when he has aptitude for the work, produce below standard?

A company establishes rules and standards to further its goals. When employees—normal human beings—act in repeated defiance of company rules and standards, it can mean that the employees do not accept the company's goals as consistent with their own.

To be specific, a major goal of any company is to make a profit. When an employee willfully fails to produce, he may be acting on the idea that his own economic interests are not being served—that there isn't enough in it for him.

Group Affiliation

It is rather rare, however, to find a man acting independently or upon an idea that is exclusively his own. An employee will usually act in a manner that has the approval or the sanction of the work group to which he belongs. His behavior will reflect not his own attitude alone, but an attitude held in common with some of his fellow workers.

This is true for a very fundamental reason: man is a social being. He couldn't possibly spend 40 hours a week with other people without forming attachments, becoming a member of a social group, and reflecting by his own acts and attitudes the approved acts and attitudes of this group.

The bonds among workers can become very strong. These bonds actually have more time to develop and strengthen than social bonds on the outside.

In addition to becoming a member of a social group inside the plant, the employee occupies a certain status within that group. This status may be based on earnings, level of skill on the job, type of job held, age, experience in the plant, general ability, leadership traits, or any of numerous factors.

So, within his department, whether he recognizes it or not, the foreman will have an informal social group or groups with their own goals and standards, their own leaders and followers, their own ways of thinking and acting.

Crowd Reaction

If the attitudes of this group are unfavorable, the employees are unlikely to act in a way that will advance the purposes of the company. If the group fears a rate cut or feels a new rate is unfair or thinks it will work itself out of a job, the employees in the group may restrict output. If the group thinks it is working with "trashy cotton," the employees may tend to ignore quality of workmanship. If the group thinks conditions are so hard or unsettled as to make a demand for steady attendance unreasonable, the employees may lay out.

If changes are made that scramble or undermine the status of employees within the group, the employees may tend to be uncooperative. And they may direct their complaint not against the real reason for dissatisfaction but against conditions that normally would be satisfactory. For example, we know of an instance where, in an expansion program, certain employees were moved to a new work location. They interpreted this move as meaning a drop in prestige. So they complained bitterly about working conditions in the new location even though the working conditions were not actually any worse than in the former location. In another situation, involving simplification of jobs, the older workers who had become skilled in the obsolete work methods vented their ire against the "shoddy" workmanship of newcomers. This situation involved loss of status among the older workers.

Management vs. Employees

The supervisor is indeed fortunate if his employees accept management's goals as consistent with their own. In this case they are likely to act the way the company expects them to act. But in some cases the employees don't see things the same way management does. Management is on one side expecting the employee to act in accordance with the formal rules and standards of the company. The employee's work group is on the other side expecting him to act in accordance with its informal rules. This situation may lead an employee to behave in a way that makes no sense to the supervision.

There is no easy solution to the problem. This article is intended merely to suggest the existence of the problem. It suggests that an individual employee's actions may be symptomatic of the attitudes of many employees. When the supervisor deals with an individual, he is in many cases dealing with a group of employees. The foreman's duty is to enforce the company's rules and standards. But he must recognize that in some instances the approval or disapproval of the informal social groups among employees has more influence upon an employee's actions than the official rules laid down by the company.

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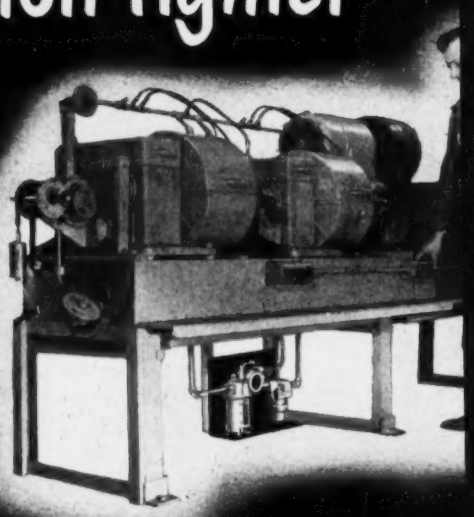

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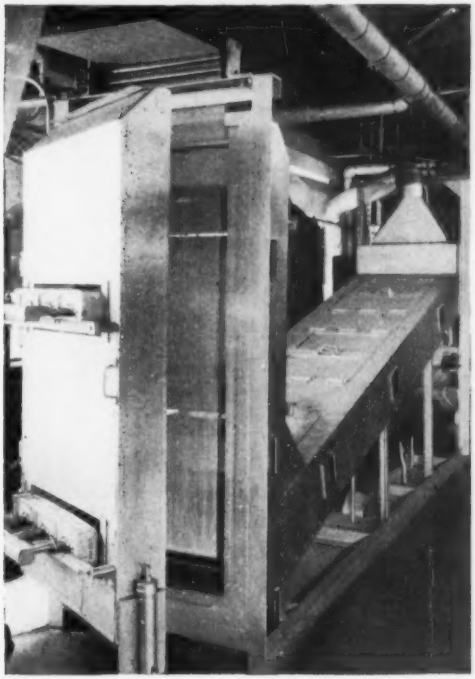
TEXTILE Equipment NEWS

Slasher Dryer Using Gas Developed at SRRL

Engineers of the Southern Regional Research Laboratory's textile-processing research division in New Orleans, La., have designed, constructed, and operated an experimental slasher that uses a gas-fired, infrared drying unit to process warps on a pilot-plant scale—warps 21 in. wide by 300 to 600 yd. long. Infrared drying was adopted on the premise that cotton yarn will not be damaged by exposure to intense heat so long as the yarn is saturated with water. Gas was selected as the fuel because of its ready availability, high thermal efficiency, and ease of control.

The dryer is an elongated, double-walled structure, in longitudinal cross-section very much like a smoker's pipe. The portion corresponding to the bowl is 6 ft. high and houses the gas-fired, radiant burners. Four burners are mounted, in staggered relationship, on opposite walls of the housing and are adjustable to move inwardly and outwardly to provide control over the intensity of the infrared radiation reaching the warp.



GAS-FIRED infrared slasher-drying unit can operate at 0.078¢ per pound of yarn dried in areas where natural gas is available at 30¢ per 1,000 cu. ft.

One wall of the "bowl" is hinged and swings outward to give access to the interior for threading up the warp and for repairing any yarn breaks that might occur during operation. The two burners mounted on this wall are fed by means of flexible metal hoses.

A 15-ft.-long inclined chamber, corresponding to the stem of the "pipe," connects with the lower end of the bowl and terminates at the opposite outlet end in a short vertical run leading to an exhaust duct.

How the Dryer Works

The burner system operates as follows: Air from a 1-lb. pressure blower brings zero-pressure gas into proportioning Venturi mixers, and the combustible mixture of air and gas is burned under pressure upon a refractory surface. The refractory is heated to incandescence, to about 2300° F., and releases as infrared rays a large portion of the total heat generated. These rays are absorbed by the wet warp, and immediately the temperature of the size on the warp is raised to the boiling point. The warp then enters the convection-drying chamber, where drying is completed by the hot, gaseous combustion products being drawn through by the exhaust blower.

This system has proved efficient and trouble-free during several years of operation at SRRL.

Since the atmosphere within the dryer is composed principally of combustion products of the air-gas mixture fed to the burners, the warp is heated in a medium of relatively low oxygen and moisture content and is not subjected to the deterioration from oxidation ordinarily expected in the presence of a high relative humidity.

Openings around each burner and at the top of the radiant section are provided with adjustable covers for controlling the amount of outside air entering the dryer. By regulation of this air and the air-gas ratio of the fuel mixture, an oxidizing, neutral, or reducing atmosphere may be maintained within the dryer.

The burners are ignited electrically, and a protective system automatically shuts off the gas in case of flame failure. An electrical interlock between the burner controls and the drive system causes the burners to be turned down for slow-speed operation of the slasher and turned off completely when the "stop" button is pressed.

The design of the dryer enables air temperatures as high as 700° F. to be maintained within the radiant heating chamber as long as the wet warp is not present. When drying warps, the air temperature usually reaches a maximum of 350° F. The inner walls of the convection-drying chamber fit rather closely to the warp so as to get high air velocities without large blower installation. No unequal heating effects from side-wall radiation have been observed.

The provisions for controlling the intensity and penetrability of the infrared radiation and the hot-air velocity make the dryer particularly adaptable to the drying of surface coatings. Heating can be so rapid that surface coatings can be dried or cured without materially affecting the underlying base.

Gas Consumption

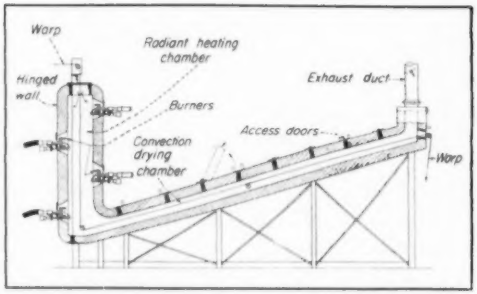
In a test run during which the burners were operating at low temperature (hence, low thermal efficiency) the dryer consumed 2.617 cu. ft. of gas to dry 1 lb. of yarn. The warp consisted of 1,240 ends of 20s singles yarn and was dried at a speed of 24 ypm. It being assumed natural gas is available at an industrial rate of 30¢ per 1,000 cu. ft., the results in the test run indicate a cost of 0.078¢ to dry 1 lb. of yarn. This figure compares quite favorably with the cost of 0.12¢ per pound for conventional steam-cylinder drying.

To permit operation of the SRRL slasher dryer at speeds of 30 to 35 ypm., the temperature of the burners is raised to the upper level of their operating range. Raising the temperature increases the thermal efficiency of the burners considerably and decreases the cost of drying correspondingly. It is estimated that in a mill four 57-in.-wide dryers would consume approximately 125,000,000 cu. ft. of gas per 24-hr. day for drying sized warps.

Royalty-Free Licensing

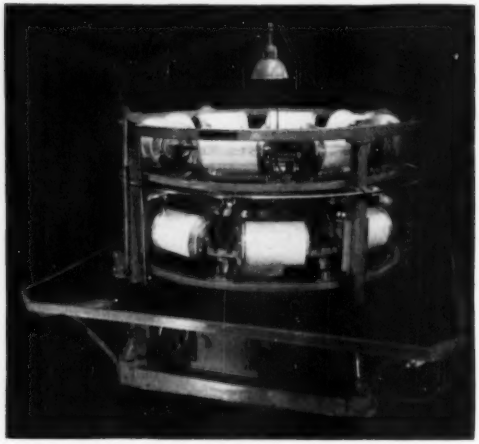
The unit may be the basis of future low-cost, high-production slashing equipment. Applications for licenses to use the unit, patented under U.S. Patent 2578744, on a royalty-free, non-exclusive basis, should be made to the Secretary of Agriculture, U.S. Department of Agriculture, Washington 25, D. C.

Further information and full engineering details may be obtained from Southern Regional Research Laboratory, 2100 Robert E. Lee Boulevard, New Orleans 19, La., by interested mills.



CROSS SECTION of the drying unit gives the effect of a man's pipe. Heating chamber is the "bowl" at the left, the drying area is the "stem" in the center, and hot air and the warps are drawn off at the right.

Circular Warp Loom Knits Milanese at 10 Yd. per Hr.



54-IN. MILANESE-TYPE FABRIC can be knit on this diagonal-effect circular-knitting warp loom at much higher speeds than has been possible on flat-bed milanese machines.

A diagonal circular-knitting loom for the production of milanese-type fabric in tube form for underwear and outerwear from nylon, rayon, cotton, or wool yarn is now available to American mills from Erick-Gross Corp., 64-72 W. Broad St., Bergenfield, N. J. The machine, using regular latch needles, knits in tube form, about 54 in. wide when opened out, at a speed of one rack (480 courses) per min. Cylinder diameter is 28 in., and gauges available range from 18 to 30.

The new knitting loom can turn out 10 to 11 yd. per hr. of evenly knitted fabric. The diagonal knitting effect is obtained by eight section beams moving clockwise and eight section beams moving counter-clockwise. Beams are large enough to accommodate 10,000 to 11,000 yd. of 30-den. nylon, and are easily put into the machine, even by girl knitters.

A beam with about 11,000 yd. of 30-den. nylon produces about 2,200 yd. of milanese fabric. The take-up mechanism can accommodate a roll of cloth about 220 yd. long. Reloading is done in the same manner as on a shuttle-weaving loom, by means of a tying-in machine. This process for all 16 beams on the knitter takes about 6 hr.

Diverse patterns in any variety of diagonal stripes for plaids can be obtained by means of different colored yarns, different denier yarns, and different types of yarns—also by leaving out certain ends in the warp. The knitting loom is equipped with an automatic stop motion, and operation of the machine is said to be extremely smooth, without strain or wear on the yarn.

One knitter can handle four of the new machines.

Memo

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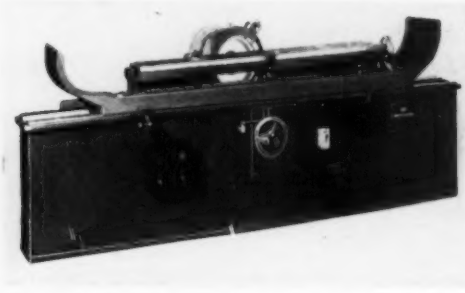
Medium-Duty Grinder Maintains Knives and Blades



ALL-STEEL-WELDED CABINET BASE of this knife and blade grinder absorbs grinding pressures through self-aligning flat and angled "V" ways.

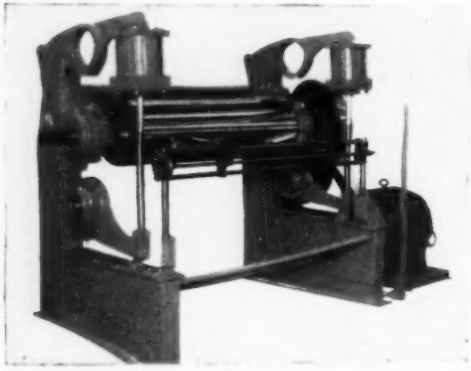
An automatic medium-duty knife grinder, called the "NL" grinder, designed for the fast, accurate care of many types of knives, including rag-cutter knives, trimmers, light shear blades, paper-cutting and stock-cutter knives, and many other types, has been introduced by Samuel C. Rogers & Co., 183-205 Dutton Ave., Buffalo 11, N. Y. It has an all-steel-welded cabinet base and is available in six standard sizes to handle knives 60, 66, 72, 90, 102, and 110 in. long. The grinder's over-all weight ranges from 1,800 to 3,500 lb.

Designed for speed and precision, the grinder incorporates an electric table drive, including special control switches, and a 1½-hp. special reversing motor. Table speeds are variable, and table reversals are smooth and shock-free. All grinding pressures are absorbed by the heavy base through the machined combination of flat and angled "V" ways. These "V" ways, too, because of the reciprocating table action, are self-aligning.

Included as standard equipment is a 3-hp. heavy-duty ball-bearing grinding-head motor. The wheel is a 14-in.-dia. segmental type and is moved to the work automatically in desired increments.

The knife bar is of the box type, with two faces to handle either thick or thin knives. A quick setup device is available. Any angle can be easily set for bevel grinding.

New Padder Can Be Operated Either Two- or Three-Roll



MIDDLE-ROLL DRIVE of this convertible padder allows for two- or three-roll operation and allows for separate buffing of top and bottom rolls.

A new convertible padder that can be operated as a two-roll padder with either the top or bottom roll in place, or as either a three- or two-roll padder when all three rolls are in place, has been developed by Cook-P & N Machine Co., Inc., 365 Dorchester Ave., Boston 27, Mass.

When used as a two-roll padder, a new automatic device (patent applied for) holds up the top roll. The middle-roll drive eliminates the need for a chain drive to the top roll. As a result, either the top or bottom roll can be buffed without buffing the other.

New-Tannage Condenser Tapes Resist Emulsifiers

A new tannage of leather developed especially for woolen-card condenser tapes has been brought out by James E. Hay Co., 244 Smith St., Lowell, Mass. The new tapes are called "Kroblak" condenser tapes.

The new tapes have very little stretch; so uniform tension results in more uniform ends of roving. They also provide a better division of fibers from the web and deliver stock to the aprons with no "drop off."

The new leather tannage does not react to emulsifiers that sometimes cause cracking and deterioration of the more common tannages of tape leather. The finish reduces felting of fibers on tapes and saves time required for cleaning, the manufacturer reports.

Drive-Rod Arms Redesigned To Stay Tight

Loom-sword drive-rod arms, redesigned to allow for the application of pressure to both sides of the sword and thus keep the arm from loosening, have been developed recently by H. F. Livermore Corp., Allston Sta., Boston, Mass.

The standard arm is clamped to the sword by a stepped cast washer. The belt exerts pressure against one side of the sword only. With all the leverage at the stud end, these arms often loosen on the sword, wear it down, and make it difficult to keep the drive-rod arms tight on the sword.

The redesigned arms are built in such a way that when the belt is tightened, a wedge-shaped washer slides along the face of the arm until it contacts one edge of the sword. This movement applies pressure between the hook on the arm and the hook on the washer, thus clamping opposite sides of the sword to keep the arm from loosening.

Strength that holds up

In Textile Spring-Beard Needles, there is strength you can depend on at every crucial point . . . at the butt . . . at the beard . . . at the shank . . . A special steel formula, superior tempering and Textile's rigid scientific controls — automatic and electronic — give the unusual needle toughness required in today's high-speed knitting operations.

This dependable strength is one of the many advantages you get from Textile Spring-Beard Needles. You'll see the results in more even stitches, better fabrics, and lower production costs.

TEXTILE MACHINE WORKS, READING, PENNA.

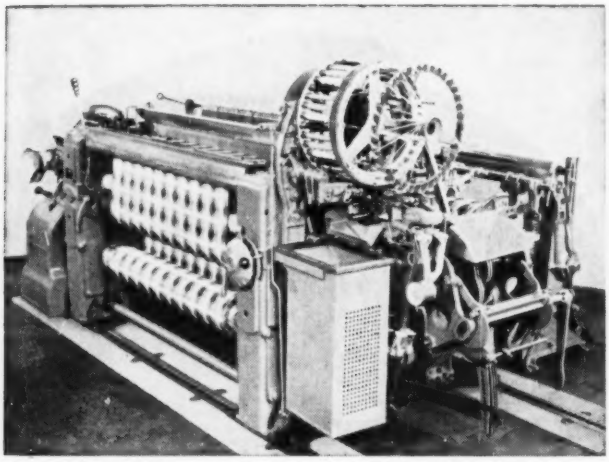
Textile

SPRING-BEARD NEEDLES

For Full-Fashioned Knitting

For Tricot Knitting

Bobbin-Changing Silk Loom Weaves Fine Colored Synthetics



FANCY SYNTHETIC FABRICS can be woven on this bobbin-changing silk loom with a minimum of maintenance and fabric defects.

An automatic bobbin-changing silk loom, Type 100 W, designed for the weaving of fine fancy synthetic fabrics, has been added to the range of looms offered by Adolphe Saurer S. A., Arbon, Switzerland. The new model has four drop boxes and a 51-in. effective reed width.

While the usual constructional principles of Saurer looms have been maintained in this new model, certain small but important alterations have been introduced to cope with the fine yarns (down to 40-den. nylon) used in the manufacture of quality synthetic fabrics. For example, the end of yarn from the used bobbin is cut between the tip of the quill and the shuttle eye by a special cutter and the loose end is collected by mechanical grippers and drawn out so that it cannot be carried back into the cloth.

To guarantee clean selvages on the drop-box side, a new motion has been constructed that holds the filling suitably tensioned in the corresponding position to the shuttle box. Thus tailins are eliminated by mechanical means, and a clean selvage is achieved.

To eliminate oil spots on the cloth, the arched construction of the ordinary loom is not used, and the driving parts are enclosed in double side frames. And to eliminate soiling from the shuttle box, a parallel picking motion is fitted onto the drop box side. By means of this motion the picker is screwed to the picker stick of the parallel picking motion; and the picking spindle, therefore, is obsolete. Consequently, oil and grease stains in the cloth do not occur.

The new loom was shown recently at the Canadian International Trade Fair in Toronto, Ont.

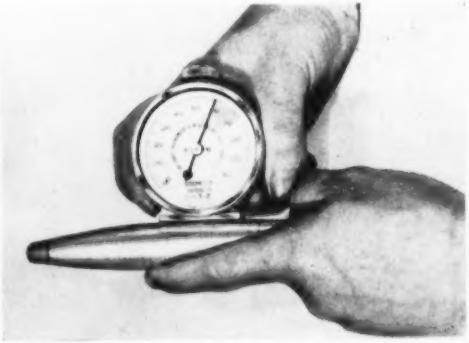
Winding-Density Gauge, Usable Anywhere

A precision testing instrument, called the "Durometer," which works by means of pin penetration and spring resistance up to 2 lb., is now available to the textile industry from Shore Instrument & Mfg. Co., Inc., 90-35 Van Wyck Expressway, Jamaica 35, N. Y. The new instrument has been developed expressly for measuring the density of yarn wound on individual cones, spools, bobbins, cops, and package-dyeing tubes. Any variation in density in a lot of bobbins can thus be determined.

The instrument consists of an easy-to-read dial graduated in units from 0 to 100. At the bottom, a blunt pin projects a standard distance. When pressed firmly against a test sample, the pin is forced back into the instrument in ratio to the density of the winding. The tighter the wind, the more the yarn resists the penetration of the pin, and, consequently, the higher the reading.

The pin is mounted on standardized twin-leaf springs within the instrument. A pressure of 2 lb. is required to deflect these springs to their maximum limit: a dial reading of 100.

The ready adaptability of the density tester to free-hand testing permits tests to be made on bobbins that are attached to machines. The instrument may be held in any position, even inverted, and it will still read correctly.



VARIATIONS IN WINDING DENSITY are easy to discover with this pocket instrument that can be used on any yarn package.

Correction

In the May, '52, issue an error was made in Textile Equipment News in the name of the manufacturer of a liquid stainless-steel coating that is capable of preventing metal corrosion when sprayed on, brushed on, or dipped.

This product is manufactured by Lockrey-Fater Co., 38-13 Tenth St., Long Island City, N. Y.

NEW

The WATSON WORKHORSE BEAM

PRECISION ENGINEERED USING QUALITY MATERIALS NEVER BEFORE UTILIZED IN BEAM MANUFACTURE

- BALANCED
- SMOOTH SURFACES
- INTERCHANGEABLE HEADS UP TO 36" DIA.

LIGHTER - STRONGER MOISTURE RESISTANT

SUPERIOR TO WOODED BEAMS— COST LESS THAN ALUMINUM

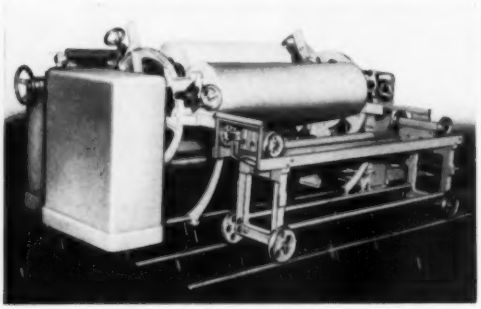
The Workhorse

WRITE FOR DESCRIPTIVE FOLDER

T. E. Watson Company, Inc.

576 LAWRENCE STREET LOWELL, MASSACHUSETTS

Turret Winder Increases Full-Decating Production



FULL DECATING on this unit has been made a more efficient job with the combination of a new turret winder and automatic controls on the vacuum kettle.

A new automatic turret winder designed for use with Gessner full-decating machines to give a production of 10 to 16 pieces per hour with one operator has been put on the market by David Gessner Co., 41 Fremont St., Worcester 3, Mass.

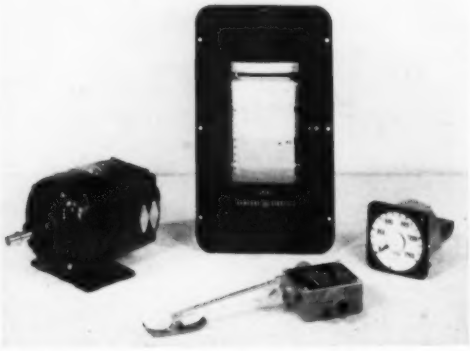
The usual hoist to lift the perforated rolls wound with cloth and apron has been eliminated. The rolls are transferred from the winder to the carriage, which carries them to the decating kettle by means of a revolving turret. This turret is push-button controlled and is locked securely into place at the end of each cycle.

Automatic guiding of the apron does away with any loss of time for straightening. This feature keeps the apron free from wrinkles. Tension on the apron is easily maintained by the use of a friction roll.

The rolls of cloth and apron are cooled in the winder rather than in a cooling frame, which procedure saves the useful floor space that a cooling frame would require.

The new turret winder, plus automatic controls on the vacuum kettle itself, makes for an even more efficient full-decating job than was heretofore possible.

Machine Performance Recorded in One Location



COMPONENT PARTS of the G.E. tachometer kit include a generator, recording unit, break detector, and a speed indicator.

New tachometer kits, containing all the components necessary to provide instantaneous and permanent records of machine performance at one central location, have been announced by General Electric Co., Meter and Instrument Dept., Schenectady, N. Y.

Central location of the new recording equipment eliminates time-consuming production-line trips by supervisory personnel and permits easy up-to-the-minute checks of operating equipment. At the same time, the permanent-recording feature aids preventive-maintenance scheduling and prevents excessive manufacturing losses from continued bad work.

Four kits are available in the new line. A typical installation includes a d.c. generator, an indicator, a switchboard-type tachometer recorder, and (where continuous run of material is produced) a break detector.

Audible or visual alarm systems are optional accessories to the kit.

Instrument Measures Thermal Conductivity of Textiles

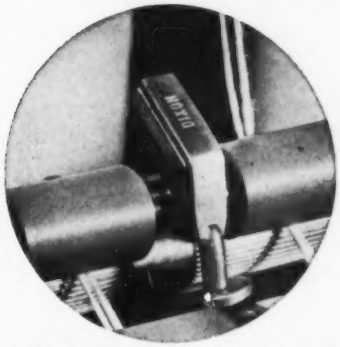
A measuring apparatus for heat conductivity that can accurately test the insulating quality of blankets, overcoats, and other fabrics has been made available to the textile industry by Central Scientific Co., 1702 Irving Park Rd., Chicago 13, Ill.

A layer of the material being tested is brought in contact with the measuring device, which is filled with boiling water and kept at a constant temperature by an immersion heater. The material is then placed on a receiving block of metal of known heat capacity. The temperature changes in the receiver, as affected by the heat being conducted through the material, are measured by means of a thermocouple; and the rate at which the receiver increases its temperature determines the insulating value of the fabric.

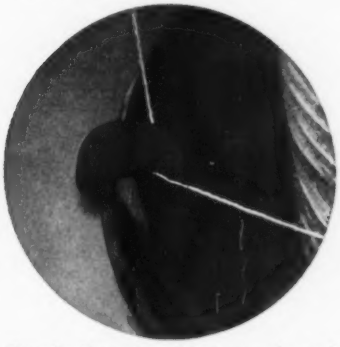
Well-insulated materials will cause the receiver block to warm up more slowly than those that are poorly insulated. The device is also useful for measuring the lack of thermal conductivity and thus provides textile manufacturers with a positive means of determining the most comfortable fabrics for summer as well as winter.

The instrument is simple to operate and non-destructive to the material being tested. Already at least one large department store is employing the instrument in its Chicago laboratory for comparing the heat conductivity of synthetic fabrics with those made of wool.

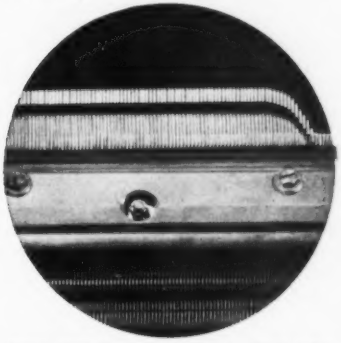
Textile machine parts of Du Pont nylon plastic



Drafting equipment parts molded of Du Pont nylon include saddle bearings on Saco-Lowell spinning frames. They need no lubrication... reduce cloth waste and maintenance costs. (Saddles made for Saco-Lowell by Dixon Lubricating Saddle Co.)



Thread guides such as this ring traveler need far less lubrication when molded of Du Pont nylon... provide more yardage on bobbins because of smoother operation...save production time... cut costs. (Traveler made by Clark Thread Co.)



Verge plate inserts molded of Du Pont nylon outlast those made of previous materials... provide a better cushion for sinker-backs... mean substantial savings in time and maintenance cost for hosiery manufacturers. (Used on Textile Machine Works' "Reading" full-fashioned knitting machine.)

need little or no lubrication... are light, tough, flexible... cut maintenance costs

A unique combination of superior performance and economy—that's the reason parts molded of Du Pont nylon are becoming standard equipment on more and more textile machines.

Nylon is tough, smooth, wear-resistant and unbreakable in normal usage. Because it is resilient, it absorbs shock loads and has low deformation under load. Nylon parts can be used continuously at temperatures up to 250°F. . . . are unharmed by oil or moisture. Used as a bearing material, nylon requires little or no lubrication . . . prevents costly damage to yarn and cloth. And its light weight (about ⅛ the weight of typical metals) and toughness in thin sections permit flexibility in design.

The examples illustrated here are just a few of the many nylon parts in use in the textile industry. Finger bearings, spindle bearings, condensers, and other machine parts molded of Du Pont nylon plastic have also proved superior in efficiency and economy.

Perhaps you can profit by using parts molded of Du Pont nylon. We'll gladly furnish the names of firms that supply mills with nylon parts . . . gladly assist you in developing new parts or improving present ones. For further information, write:

E. I. du Pont de Nemours & Co. (Inc.)
Polychemicals Department, District Offices:
350 Fifth Avenue, New York 1, New York
7 South Dearborn Street, Chicago 3, Illinois
845 East 60th Street, Los Angeles 1, California

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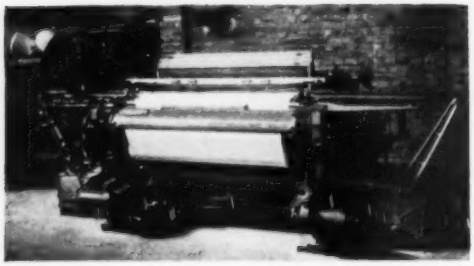
DEPARTMENT
PLASTICS • CHEMICALS

Shuttleless French Loom Runs 250 Picks per Min.



RECIPROCATING ARMS with attached plungers each drive half-way through the shed on this new type rayon loom to push and pull the filling from one side to the other at extra-high speeds. The shuttle, drop boxes, and filling winding are thus eliminated.

A high-speed rayon loom, called the "Sobretex" loom, with a new type of picking arm on each side of the loom that does away with the shuttle, drop boxes, and preparatory filling winding, has been developed after 20 years of effort by Raymond Dewas, head of Société Sobretex, 120 Boulevard de St. Quentin, Amiens, France. Single-pick, pick-and-pick, double-pick, and four-filling pick-and-pick weaving is accomplished on the machine at speeds ranging from 250 to 300 ppm.

Secret of the high speeds obtainable is the system of synchronized "arms" that plunge halfway into the shed, one to lead the filling end in from a large cone located on a stand nearby, and the other to pluck the filling from the tip of the first arm and pull it through to the other side. The harness motion and beat-up of the pick are standard.

Single-pick fabrics are woven by means of a permanent-type head on the lead arm, in which the filling remains permanently threaded. In two-pick weaving, a multi-type head is used. The pick-and-pick filling interchange consists merely of two cams, each operating a guide eye through which a filling yarn is threaded.

The pick-and-pick four-filling loom has selectors that consist of simple eyes driven in a reciprocating motion by a small Staubli mechanism. A single cam actuates a positioning lever to present the correct yarn to the grabbing point of the draw "arm."

For loom widths over 50 in., the two arms are operated by flexible non-metal perforated tapes. However, because of delays resulting from World War II destruction in Amiens, a certain time is still necessary to produce commercially the wider-width looms.

Lift-Truck Attachment Handles Different-Sized Drums

An automatic, mechanically-operated drum-handling attachment, capable of carrying different-sized drums two at a time, is available from Yale & Towne Mfg. Co., Philadelphia Div., Roosevelt Blvd., Philadelphia, Pa.

The mechanical operation of the new horizontal drum handler requires no special hydraulic-system components. The drum handler is attached to the truck by clamping it directly on the forks, with a minimum of time needed for either installation or removal.

In operation, the driver tilts the mast backward and engages the rear hook on each boom of the attachment with the near end of each drum. By moving the truck slowly forward and tilting the mast forward, he then engages the front hooks while long tension springs keep the rear hooks in contact with the drums. Picking up the load locks the rear hooks with a positive grip.

To deposit the load, the tilting procedure is reversed.

HORIZONTAL DRUM-HANDLING attachment for standard industrial fork trucks requires no special hydraulic-system components.

New A.C. Electric Guider Is Sensitive to 1/50 Sec.

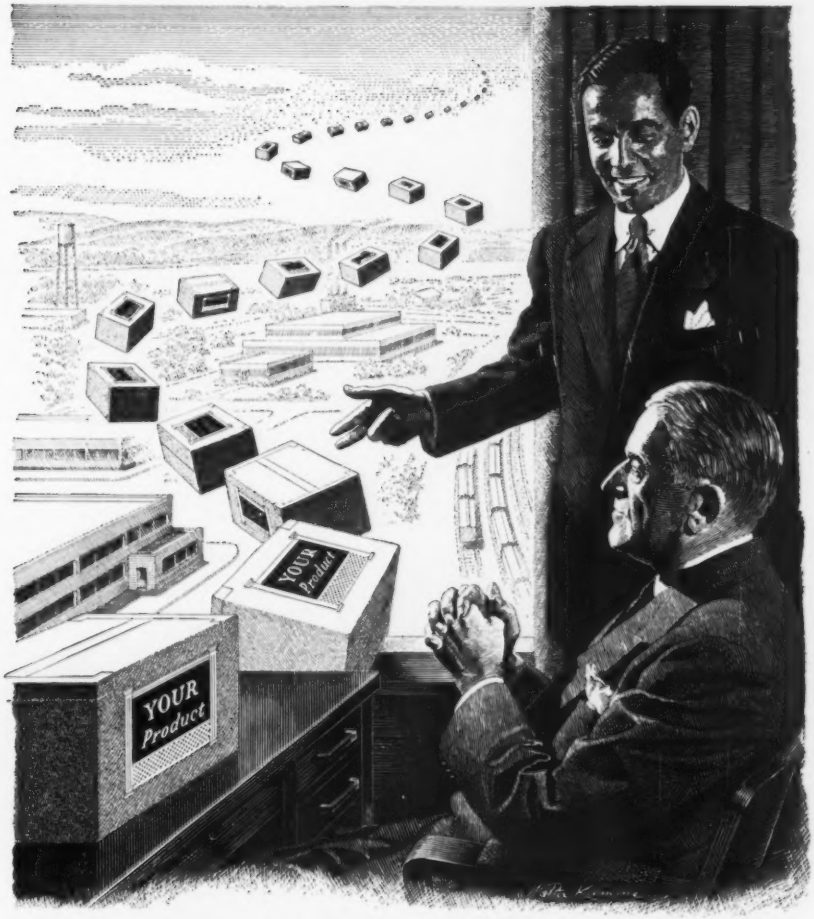
An electrically operated cloth guider that plugs into any 110-v., 50- or 60-c. a.c. system has been added to the line of air and mechanically operated guiders made by Guider, Roll & Service Co., Box 3747, Daytona Beach, Fla. The new guider opens and closes the metal and rubber rolls in 1/50 sec., thus insuring accurate guiding.

Other features of the guider are rapid adjustment of pressure between the metal and rubber rolls and of the distance that the rolls open. The operating switches can also be replaced in a few seconds. The switches are equipped with newly developed arc suppressors, which the makers claim give them almost unlimited life.

For extremely delicate fabrics, the new a.c.-operated guiders can be furnished operated by electric eyes. The fabric selvage in such a case energizes the coils by interrupting a beam of light; so it is unnecessary for the selvage to touch a lever, which is ordinarily the way aligning is done.

The new a.c. guiders fit on existing stands.

(*Continued on page 216*)



Gaylord Boxes Give You Extra Sales Messages

They're Traveling Billboards

Shipping containers carrying your trademark, sales message or slogan provide extra sales contacts. And they provide unusual opportunity for seasonal merchandising or special promotion deals.

Because good first impressions are good business it pays to ship your products in distinctive Gaylord Boxes.

For helpful information on "advertising on the move" get in touch with your nearest Gaylord Sales and Service office.

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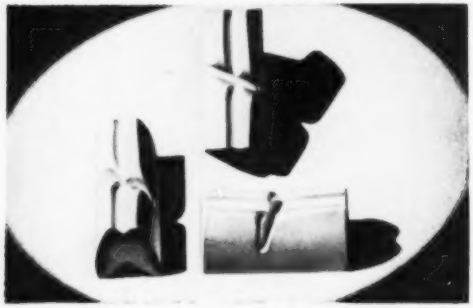
Winding Dwell Eliminated by Cross-Slot Yarn Guides



ELIMINATION OF BUILD-UP of excess yarn on package ends is the advantage of these new winder, redraw, and uptwister yarn guides.

An improved "AlSiMag" guide design that maintains a constant yarn tension during the entire traverse, including the reversing points, has been perfected by American Lava Corp., 219 Druesi Building., Chattanooga, Tenn. The new-type guide is used on winders, redraws, and uptwisters and is designed to eliminate build-up of excess yarn on package ends.

Smooth packages are obtained by a carefully calculated cross-slot in the guide. The yarn in the conventional guide will stay stationary (dwell) for a moment at each traverse. The new AlSiMag-design cross slot gives an even, smooth flow of yarn with no variation in tension. Mill experience is already said to prove that the new design eliminates the build-up of excess yarn and thus produces clean, smooth packages of high uniformity.

The improved guide, called the GE-26221, will fit many types of machines but has been designed principally for Universal's Atwood redraw Model-200 and the Atwood "Utility" uptwister.

The demand for these guides from mills that have tested them has created a volume of production that has allowed new production processes. The combination of increased volume and lowered manufacturing costs has permitted price reductions as high as 35%, the manufacturer reports.

Because the new guide requires a slightly shorter traverse than is required for conventional guides, machine adjustments must be made; but they are made quickly and easily. The manufacturer offers to consign enough guides to a mill for a full frame test. The guides can be returned within 12 mo. for full credit if so desired.

New Line of Scales Is Streamlined

A new line of "Speedweigh" over-under scales has been announced by Toledo Scale Co., 1009 Telegraph Rd., Toledo 12, Ohio, that offers an advanced design for speed and accuracy in industrial packaging and check-weighing. The new scales are available in three capacities: to 5 lb., to 20 lb., and to 50 lb.

Besides having a choice of either front or side indication, the scales have (1) modern design of chart housing (acrylic-plastic dome), (2) easy-to-read charts (black figures on a yellow background), (3) full selection of scoops and platters, (4) stainless-steel beam with "lock" poise, and (5) compact design.

Other features of the scale construction include split-second weighing action through a new-type indicator drive that eliminates friction points in the indicator mechanisms; a special light-weight aluminum-tubing indicator protected from shock by resilient rubber bumpers on both sides of the housing; an oversize dashpot that brings the indicator to rest instantly; knife-edge pivots; and bearings that reduce friction at all connecting points. New "coined" bearings assure correct positioning of pivots in the bearing grooves.

ADVANCED DESIGN of new line of 5-, 20-, and 50-lb. scales includes a plastic dome for easy reading and an oversize dashpot that brings the indicator to rest instantly.

Masonite Section Beams Have Structural Advantages

A new type of section beam whose heads and barrel are made of tempered Masonite hardwoods for outstanding moisture resistance, dimensional stability, structural strength, and abrasion resistance has been put on the market by T. E. Watson Co., Inc., 576 Lawrence St., Lowell, Mass.

The hard, smooth Masonite surfaces of the beam are completely free from knots, are without grain weaknesses and similar defects often found in wood, and thus give excellent yarn protection. The beam has far greater resistance to suddenly applied loads distributed over a small area than ordinary wood of equal thickness. High density and hardness make the beam also unusually resistant to denting, scuffing, and abrasion.

The interior barrel construction consists of cast-iron heads at either end connected by tie rods and arranged for solid bolting to beam heads and keying to the shaft. It is not necessary to load up the beam barrels with a series of heavy metal wheels for reinforcement as Masonite withstands compression of yarns without noticeable deformation.

The beam is considerably lighter than wooden ones of proportionate dimensions and is only slightly heavier than the aluminum type. An important feature also is the reversability of the beam heads, which assures longer usage life than ordinary beams.

TEXTILE EQUIPMENT NEWS

(*Continued on page 216*)

Now...Industry does big-truck jobs at small-truck cost with

YALE *WORKSAVERS*

HIGH-LIFT PLATFORM WORKSAVER

SOLVE Time-Space Problems!

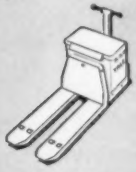
Move loads into and out of *any* storage or production area – easily and efficiently – with YALE ELECTRIC WORKSAVERS, industry's leading *powered* hand trucks!

SOLVE Manpower Problems!

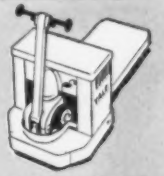
Practically any man in your plant – picked at random – can transport, lift and stack multi-ton loads, safely, surely, smoothly – with a YALE ELECTRIC WORKSAVER!

SOLVE Cost Problems!

YALE ELECTRIC WORKSAVERS are low in initial cost, economical to maintain, operated easily by anyone. The money-saving answer to your handling problems!



PALLET WORKSAVER



PLATFORM WORKSAVER

TRACTOR WORKSAVER

HIGH-LIFT FORK WORKSAVER

YALE WORKSAVER ELECTRIC HYDRAULIC POWERED HAND TRUCKS move right in—where big trucks are too big to fit—or too heavy for your floors. Yet they give you all the big-truck advantages...at far less cost: power travel—forward and reverse...power hydraulic lift...speed...everything! That's why, where size and weight make big trucks impractical, industry prefers YALE WORKSAVERS. Powered by economical electric power—they're your answer to countless materials handling problems in every plant or factory.

You'll Be Amazed By a Demonstration in Your Own Plant or Warehouse!

See it move about—lifting, transporting—through narrow doors, into elevators, and freight cars, over "low-load" floors. See how it saves you time and money. Ask your Yale Representative! He'll arrange a WORKSAVER demonstration in *your* plant. No obligation, of course!

There's a Yale Worksaver to meet your every need!

Yale is a registered trade mark of The Yale & Towne Mfg. Co.

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YALE

MATERIALS HANDLING EQUIPMENT

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☐ Please have your local Representative call on me.

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Gas and Electric Trucks • Hand Trucks • Hand and Electric Hoists • Pul-Lifts • *Worksavers*

NEW Dyes AND Chemicals

German Fair Introduces—

Fixapret CP Liquid

BASF (Badische Anilin-und Soda-Fabrik), Ludwigshafen, Germany, introduced its new "Fixapret CP Liquid," an interesting product for wood-fiber textures that gives various effects. For example, cotton textiles receive a bright luster, known as "chintz quality," that will not disappear after laundering. Another advantage of the product is the fact that cellwool or rayon textures can receive printing and moire effects that will also be water resistant.

Indanthren-brillantgruen

Farbwerke Hoechst, vermals Meister Lucius und Bruning, Frankfurt, Germany, exhibited their large range of dyestuffs and emphasis was given to the new Indanthren-brillantgruen (vivid green) H3G Suprafix dye. This dye produces very vivid and fast prints on cotton and synthetic materials. A new violet dye, suitable for woolens, Anthracyaninviolet 3R, was also of great interest, since it can be applied to Perlon materials.

A large assortment of textile-finishing aids was shown by Hoechst; one of these is a newly developed product, "Vinarol ST," a thickening substance for printing Lanaperl and vat dyestuffs on Perlon material.

Printing Assistant Betters Aniline Black Dyeings

Hart Products Corp., 1440 Broadway, New York, N. Y., has developed Hartamine, an assistant for printing and dyeing aniline black.

It is claimed that the addition of 10 to 15% of the assistant to the regular aniline-black formulas prevents aniline blacks from turning green, maintains the tensile strength of the fibers, reduces the steaming time, improves the stability of the padding liquors and printing pastes, and eliminates aniline-oil odor in the finished goods.

Hartamine is a concentrated, dark-colored, liquid product.

New Dyeing Carrier For Dacron Is Soluble

Dyeing Assistant #52 is a new product of Ciba Co., Inc., 627 Greenwich St., New York 14, N. Y., recommended as a "carrier" or dyeing assistant in the application of colors on Dacron.

The product is marketed in a liquid form that can be diluted with water and added directly to the dyebath. Pre-dissolving with caustic soda and the subsequent addition of acetic acid to the dyebath are not required with this product, the makers state.

Dyeing Assistant #52 is said to leave Dacron with a soft, lofty hand.

New Printing Black Gives Clear Outlines

Neosol Printing Black BD, also by Ciba, produces a comparatively low-cost black with excellent fastness on all cellulosic fiber materials, distinguished by a bloomy deep shade and sharply defined details.

Because of its resistance to hydrosulfite, the dye is especially recommended for producing fine outlines, free from halos, alongside vat color and white discharges. Also, when used as a black on white or colored overfalls, this dyestuff is said to be a very useful product.

Alkyd-Resin Dispersion Needs No Curing

Scher Brothers, 519 Getty Ave., Clifton, N. J., has begun marketing Ribbonset Finish, a new alkyd-resin dispersion.

Completely eliminating the need for curing, the product imparts a hard film to all fibers and retains luster without causing shade change, the company claims.

Called Ribbonset Finish because one of its most important uses is its application to acetate satins where a parchment-like hand is desired without mark-off, it is also recommended as a firm finish for taffetas, ninons, bedspreads, blanket-bindings, and underwear satins.

New Line Offered In PVAs Is Versatile

From the large number of possible combinations of viscosity and degree of hydrolysis, American Monomer Corp., Leominster, Mass., has selected six standardized grades of polyvinyl alcohol for manufacture under the trade name "Lemol." These represent the most widely used types.

High viscosity and completely hydrolyzed Lemols for compounding with polyvinyl-acetate emulsions for waterproof adhesives, thickening agents, unsupported film, and for warp and filling size for cotton and viscose yarn are offered.

High viscosity and completely hydrolyzed Lemols are recommended for use as protective colloids, emulsifying agents, thickening agents, and as extenders for polyvinyl acetate emulsions.

Medium viscosity, partially hydrolyzed Lemols permit higher working concentrations than other types, the makers claim.

The most water-sensitive grade, a low-viscosity, partially hydrolyzed type is best for use as an emulsifying agent, and as warp size for acetate and nylon yarns. It is also least sensitive to added salts.

Bordeaux for Acetate Gives Heavy Shades

Celliton Fast Rubine 3BA-CF is a straight dispersed type of azo dyestuff (Pr 239) offered by General Dyestuff Corp., 435 Hudson St., New York 14, N. Y., for the direct dyeing of bordeaux shades of superior lightfastness on acetate; it is also suitable for dyeing nylon. This dyestuff is a nondusting powder that disperses well without any tendency to form a tar in either cold or hot water.

When dyed at medium percentages on acetate, it produces rich bordeaux shades, and, at low percentages, pleasing old-rose tones. The very good tinctorial value of this dyestuff makes it especially useful, either alone or in combination, where great depth of color is desired, the makers claim.

Full dyeings of this product display very-good-to-excellent (6-7) fastness to light, and light dyeings, very good (6) fastness. The fastness to atmospheric fading of such dyeings is very good (4); the fastness to sublimation is excellent (5); and the fastness to washing is fair (2) or better (3-4), inversely according to the depth of the dyeing. Excellent (5) resistance to Developer ONS permits use of this dyestuff for shading Cellitazols, which are diazotized and developed, and excellent (5) dischargeability gives this dyestuff an important place in the dyeing of dischargeable ground shades.

The property of dyeing at a medium rate, and thus penetrating well and yet exhausting satisfactorily at medium as well as at high temperatures, makes it suitable for application in either jig or reel. These good dyeing properties at the same time permit its use in fabrics of tight constructions, such as failles, crepes, taffetas, or romaines.

The shades obtained with the color on nylon are much bluer than those on acetate and appear even fuller and deeper. The fastness to light on nylon is much poorer than on acetate. The dischargeability on nylon (4) is also not so good as on acetate, and yet it is adequate for most purposes.

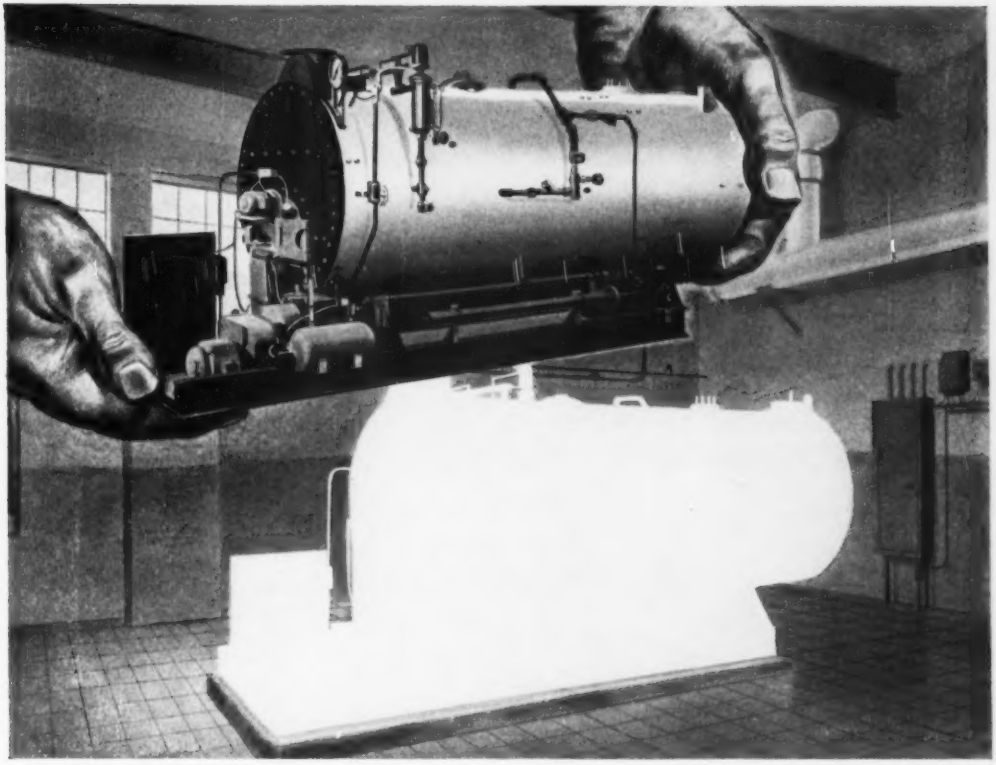
As a CF dyestuff and therefore one virtually free from copper and manganese, Celliton Fast Rubine 3BA-CF is suitable for textiles that are to be rubberized.

New Brilliant Yellow For Synthetics

A new dyestuff made by American Cyanamid Co., Calco Chemical Div., Bound Brook, N. J., may be used for exceptional brilliance on acetate, nylon, and other popular synthetics. The new product, Calcofluor Yellow HEB, can be used as a self shade or—using the normal acetate-dyeing procedure—it can be applied in conjunction with Calcosyn dyes to produce unusually bright shades of orange, yellow, scarlet, green or chartreuse, the

(Continued on page 224)

Ready when you need it...



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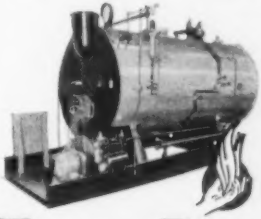

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For more information, write direct or use Reader Service post card.

THIS IS NO. 94 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

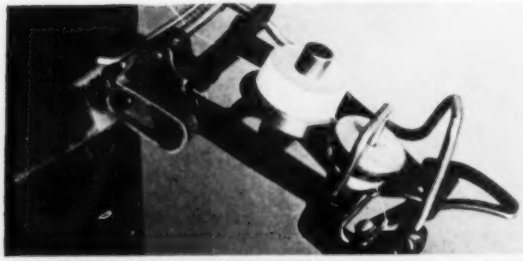


Fig. 1

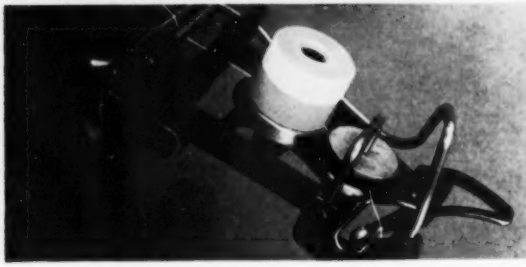


Fig. 2

HOW TO REDUCE PARAFFIN VARIATION

Mills using the paraffin attachment on their Roto-Coners* sometimes run into the difficulty of varying amounts of paraffin being applied to the yarn. That is, the amount of paraffin applied when the cake is new varies from the amount applied when the cake is almost used.

The following suggestion is a simple solution to this problem. Instead of using one cake at a time, start with two cakes. When the bottom cake wears away, place another cake on the holder. This greatly decreases the variation as there will always be one full cake on the holder plus at least a portion of another cake.

The cake holder on the Roto-Coner* is long enough to hold both cakes as the thickness of the paraffin cakes we specify is 11/16 inches.

Now, how much difference does this procedure make in the variation of amount of paraffin applied to yarn?

One cake weighs approximately 250 grams. If it is used alone and allowed to wear away as shown in Figure 1, it will result in a ratio of variation of 250 to 0. On the other hand, when two cakes are used, as shown in Figure 2, the variation is only 500 to 250 or 2 to 1.

HOW TO START AN END WHEN SIZING SINGLE END NYLON

When sizing single end nylon, a practice generally followed is to *lap* the end onto the sizing tube instead of tying a knot.

Some operators, in an effort to start a spindle as quickly as possible, may take the yarn directly from the supply package and wrap it around the revolving sizing tube *before threading the end through the tension and thread guide*. In this case the yarn from the time it is lapped onto the tube until threaded through the tension and guide, is *not* under control. It delivers loosely without tension directly from supply package to take up tube. It may be thrown over end of the tube possibly lodging between expander and starting handle and wrapping around the spindle.

This can be prevented by the following procedure:

1. Stop the spindle.

2. Take end of yarn from supply package and thread it through tension and guide.

3. Wrap end of yarn around sizing tube.

*Reg. U. S. Pat. Off.

23.2.12

August, 1952

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA CHICAGO LOS ANGELES MONTREAL and HAMILTON

LETTERS FROM OUR READERS

Address all communications to:

Editor, *Round Table*, TEXTILE WORLD
330 West 42nd Street, New York 36, N. Y.

Round Table

PROPOSED TAX-REDUCTION METHOD

Dear Editor:

Let us assume that we could so reduce the cost of government that it would be possible to reduce our national debt in each of the next four years by 3% of its total. Such a plan should contain a pledge that when this 3% reduction of debt is accomplished, a 3% credit will be allowed on the tax bill of every taxpayer in the United States for the succeeding year. Since the total debt is some four or five times that of the total receipts of the government, such a plan would make debt reduction possible in future years until we had at last reached a point where the debt was more manageable and less of a threat to our solvency, or until by successive tax reductions we had established a reasonable tax load.

This plan would, as years went by, reduce tax levies and diminish the rate of debt reduction, but such tax reduction would in turn create more taxable income. The debt reduction also would automatically reduce the interest charges.

A courageous man in the White House should attempt to devise some formula by which an appeal would be made to the American taxpayer to support a high-tax policy in the interest of fiscal soundness, but as a reward for such support favorable tax consideration should be promised by the government on a definite earning basis.

If there is a change in government or in the thinking of those in charge of government, irrespective of which party may come into power, then some new basic policy must be put into effect.

HENRY H. HEIMANN
Exec. Vice Pres.
National Ass'n. of Credit Men
New York

THE OLD ARGUMENT —WHICH SYSTEM?

[In *The Houghton Line* appeared a renewal of the discussion about yarn-numbering systems. Here are their remarks, plus some more—Editor.]

A letter arrived from John K. Stearns, Director of the School of Textiles, International Correspondence Schools, Scranton, Pa. After short reference to our comment on the metric system generally, Mr. Stearns continued:

"For some time there has been a lot of discussion concerning the type of yarn-numbering systems that would appeal to most people in the textile industry. The present situation, with each yarn numbered on a different system, is getting to be more and more impractical.

"The ICS has several thousand students every year who are working right in textile mills. I thought that this offered me a good opportunity to find out what the average man in the mill thinks about the various systems . . .

"When we first started to send out this instruction text, several lively arguments ensued between our instructors. The general consensus was that, due to the fact that most of our students are in the cotton industry, the cotton-yarn-numbering system would be the one overwhelmingly chosen. We were all very much surprised to note that the majority of the students seem to prefer the metric system, even though this system cannot possibly be familiar to them. I presume it is just the very normal situation of the mass of the people being far ahead of the 'leaders,' in this case of the technical societies, who could possibly bring about a revision of our antiquated measuring systems."

Another Opinion

We put the matter up to the Philadelphia Textile Institute for an opinion. Here is the reply from Professor Frank L. Giese, in charge of weave formation and fabric analysis:

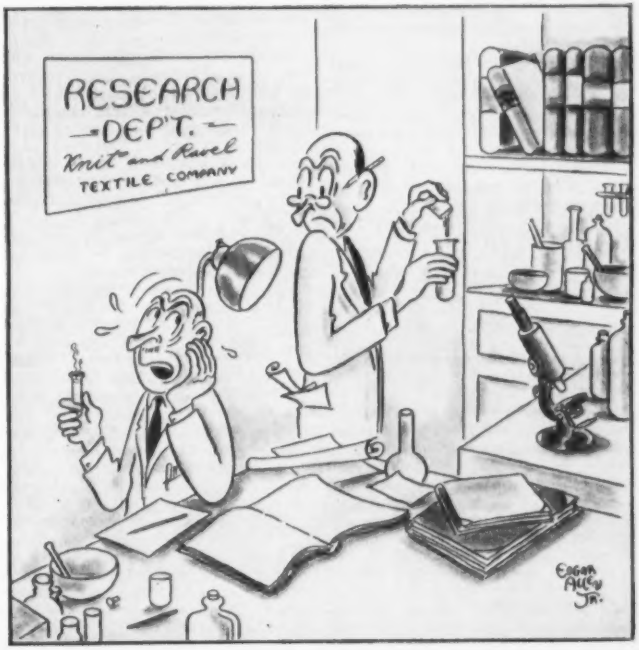
"There is a real, recognized, and admitted need for a universal system of yarn numbering.

"Recent suggestions have been the Typp (thousand yards per pound) and the Grex (weight in grams of 10,000 meters). Both are good systems.

"We now have the Typp and the Grex in addition to the previous systems.

"It is our opinion that cotton men favor everyone using the cotton system, the wor-

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*



"Oh, Oh! I've been on this research so long I've forgotten what I'm supposed to be trying to discover!"

sted men favor everyone using the worsted system, the wool men the wool systems, etc.

"Even though a given mill were to adopt a new standard and re-educate all of its help, it would be difficult to re-educate all of the customers. 'You can't argue with customers.'

"While the advantages of a universal system are admittedly desirable, there has been no system proposed that seems desirable enough to re-educate all mills (and all customers).

"Basically, all the systems have equal merit, both in reciprocal and in direct methods.

"Any advantage you claim for direct can be claimed for reciprocal if you change the wording to 'yards' instead of 'units of weight.'

"The metric system is very easy with metric units.

"It is not easy to impose the metric system with yards and pounds as the national standards in practice.

"For example, the denier system has the standard weight of 5 centigrams (or 1 denier) and the standard length of 450 meters and states the yarn number as the denier weight of 450 meters. It can also be expressed as the weight in grams of 9,000 meters. Expressed in yards and pounds it is the weight in pounds of 4,464,528 yd.

"The Grex system, which expresses the weight in grams of 10,000 meters, is simpler in the metric system, but not in yards and pounds because the equivalent is weight in pounds of 4,960,545 yd.

"Metric equivalents are all many-digit factors.

"We have polled the student body, with the exception of the freshmen, with the following question:

"'Do you favor the metric system, rather than the American system, for the numbering of cotton yarns?'

"The answers are of comparatively little value, because we do not use the metric system.

"28% favor the metric system (38% of these are foreign students); 72% favor the American system."

THE HOUGHTON LINE
Philadelphia 33, Pa.

MORE FROM ICS

Dear Editor:

I am glad of the opportunity to give some more information that may be of interest.

Most of our questions to our students are designed to test their factual knowledge. However, the question "If you could enforce the introduction of a uniform yarn-numbering system, which system would you choose?" is simply meant to stimulate some independent thinking among the students about one of the problems encountered in the textile industry.

Since we first introduced this question in 1949 we have received thousands of answers to the inquiry. One year we tabulated the answers and found the information to be as follows: 39% favor the metric system, 22% the Tyon, 9% the integral, 9% the cotton and 6% the Grex. Of the remaining 15%, 9% wanted any of the reciprocal systems, while 6% favored any direct system.

You would normally expect that the majority of the students would prefer the cotton system. After all, most of the students work directly in the cotton branch of the industry. However, it seems that the majority prefer the metric system, and the next largest group prefer the Tyon system. Of course, the Tyon system is very similar to the metric system.

Perhaps this survey will stimulate some progressive thinking among the technical societies and institutes that are interested in the field of textiles.

JOHN K. STEARNS
Scranton, Pa.

COTTON "GOES MODERN"

Dear Editor:

Industry is becoming increasingly interested in a new textile material—partially acetylated cotton.

Although most—if not all—new textile fibers announced in recent years have been "synthetics" (made by extrusion), a new fiber of real industrial potentialities has been investigated at the Southern Regional Research Laboratory for several years, and processes now have been developed that are adaptable to commercial use. Partially acetylated cotton is made by altering the chemical composition and hence the chemical and physical properties of the fiber.

Researchers here say that they have learned many tricks about altering the chemical composition of cotton and that they have several new modified cottons—all with interesting and unusual properties—under development.

The one under discussion here is made by acetylating cotton in either fiber, yarn, or fabric form. Acetic anhydride, a large-volume inexpensive chemical, is the reagent used in making partially acetylated cotton. As new textile fibers go, partially acetylated cotton will be relatively inexpensive, i.e., it will be more expensive than rayon, but less expensive than nylon, Orlon, Dacron, and dynel.

The evaluation of partially acetylated cotton is not yet complete, but several outstanding properties are known:

(1) Heat resistance (retains most of its original strength for days, even at 160° C. (320° F.)
(2) Rot and mildew resistance (far superior to cotton. Partially acetylated sandbags were still "in service" after standing on the ground for a year)
(3) Lower moisture regain (about one-half that of untreated cotton)
(4) Resistance to chemicals (resistance to certain chemicals is excellent—resistance to acids is improved)
(5) Greatly improved electrical insulating properties

A number of possible uses to take advantage of the outstanding properties of partially acetylated cotton have been suggested. These include:

Requiring heat resistance:
Laundry press covers and pads
Rubberized cloth
Gaskets and packing

Requiring rot and mildew resistance:
Fish nets and twine
Clothes lines
Bags in water purification systems
Sand and barricade bags

Requiring resistance to chemicals:
Filter cloths

It is anticipated that additional potential uses and applications will be discovered as evaluation studies are continued.

Like other new textile materials, partially acetylated cotton has some disadvantages. These are:

(1) Increased cost (extent not known exactly, but one large chemical company estimates a selling price of $1.00 per pound for partially acetylated cotton fiber, based on 40¢ for cotton
(2) Impaired launderability (tests are not complete, but partially acetylated cotton is apparently unsuitable for laundering in alkaline solutions)
(3) Processing characteristics (static is developed, but in this respect partially acetylated cotton is no worse than some of the synthetics)

Much helpful information on potential manufacturing methods has been made available at SRRL, where cotton fiber has been acetylated in 50-lb. batches, and up to 500 yd. lengths of fabric have been treated successfully in a dye jig. Both yarns and fabrics have been acetylated by continuous methods. Some of these methods have been used by industry, and it is expected that partially acetylated cotton will become an item of commerce soon.

Partially acetylated cotton is not new in the sense that acetylated cotton had never been made before. Actually, acetylated cotton has been offered on a small commercial scale in England. The published results of developmental work, however, and commercial success have been limited. Southern Laboratory scientists have done much work, developed feasible manufacturing and processing methods, and discovered additional potential applications. With the information now available and under development, commercialization seems assured.

SOUTHERN REGIONAL RESEARCH LABORATORY
New Orleans, La.

ON PLANNED PUBLIC RELATIONS

Dear Editor:

Occasionally the textile industry must shift its public relations into high gear to reach certain goals without delay. However, in other cases it would be more practical to map out long-term programs that would, in effect, be on a continuing basis.

Community acceptance should not be rushed. Indeed, if a year or two show no more results than convincing the community that textile mills fill a vital place in the national economy, management should be satisfied. On that basis you may later build acceptance and cooperation for your mill in particular.

Facts on the textile industry, presented in every possible form from the local press to company-sponsored movies, must be used to create pride on the part of work-

(Continued on page 225)

Exploring

The Textile Community

EXECUTIVE HEALTH— A Lifeline to Community Security

▶ One of the great wastes in the textile industry is the loss of key personnel through illness that strikes them down at the peak of their careers. Too often these men are victims of their jobs; overwork is the actual cause of death of many a relatively young executive. Yet mills are doing almost nothing to protect their investment in trained manpower through intelligent health programs like the one outlined here. These pointers can help your company find its own answer to the problem.

By MILDRED BARNWELL ANDREWS

HAVE YOU BEEN READING the obituary columns lately? They're loaded with notices of the sudden death of relatively young men in the textile industry: 48 . . . heart attack; 51 . . . heart attack; 54 . . . heart attack.

Seems we won't have many old-timers in this generation of textile executives. They are dying 20 to 30 years before their allotted three-score-and-ten. And, in nine cases out of ten, although the cause is listed as "heart attack," they are actually dead of overwork and overworry over too many years.

With this appalling record, we find no textile company making a completely honest effort to protect its investment in executive manpower through a planned controlled-health program for its key men. Such a program does not mean health-insurance policies, although that is important economically. It means job insurance through health security.

On rare occasions we find an executive who says, "Oh, yes, I get a check-up every year." But what does that check-up mean, how good is it, and what does he do about it as a basis of health security? Does he require that all other key men, from overseers to top management, take the same precautionary check-up? Ask him those questions and the answers will be negative.

The obit columns tell us that executives should be planning for their own happiness, their community's progress, and their company's future by inaugurating such a program. The great waste in lost executive health is not an intangible. It is a basic part of a company's asset-and-liability structure.

A two-way approach is needed: (1) health security by clinical checkups, diagnosis, and efforts to cure; and (2) health security by preventive check-ups and work adjustments based on diagnosis.

Only able diagnosticians can find physical ailments and chart possible cures. But prevention of those ailments through annual check-ups by specified doctors, plus life and work adjustments, can be a part of the health-security program of every good company. There are lots of ways your executives can be maintained in better health. It's not too late to put an executive-health program into operation.

Out of a list of ailments common to industrial key men examined over a period of four years by one of the Mayo Clinic doctors, the highest percentage (14.5) was chalked up for nervousness and some neurosis. Arthritis, bursitis, and fibrositis ranked next; then overweight, high blood pressure, and ulcers. Coronary heart disease was way down the list with only 3.5%—the same rate held by infected tonsils and heavy smoking.

Does your company recognize nervousness in a key man as a danger signal? Does it take steps to relieve him of some of the pressure of overwork or worry by giving him an assistant; suggesting less exacting office time and more frequent periods of rest or vacation; raising his morale by getting to the root of the trouble? No matter how well he looks or how impressive he may be as he speaks to his civic club, an overly nervous man who is irritable and quick to pound his desk and who can't get along with his work associates is sick. He can cost his company plenty by making wrong decisions, firing indiscriminately and with no justification, breeding dissatisfaction among employees, and losing good will for the company in its community.

The company's financial security and the well-being of a community may depend upon the health security of that key man. Easing the strain on a man who has crowded 40 years of effort into 20 years of work is no reflection on his ability. It is evidence of a company's good common-sense policy of protecting its investment in his ability. Suppose the man in question is the top man? Well, he must have an executive committee or a board of directors or stockholders to answer to.

When one of your key men is stricken with arthritis, does your company lay him off as useless because he is physically handicapped? Or does it look to his health security and its executive investment by giving him the assistance he needs to produce the same maximum amount of brain power? One of the textile industry's greatest scientists for 20 years was greatly crippled with arthritis. To hold a pen in hand meant agony to him. To get dressed and get to his office meant winning a physical battle each day, but love of his work kept him going. With an assistant to do his desk chores for him, he carried on his program of research. The company paid for an additional salary, it's true, but it reaped many times that expenditure in research and prestige awards. There is no known way to prevent arthritis, they say, but

(Continued on page 229)

Kinks AND SHORT-CUTS

Picker-Rod Stands Repaired in 15 Min.

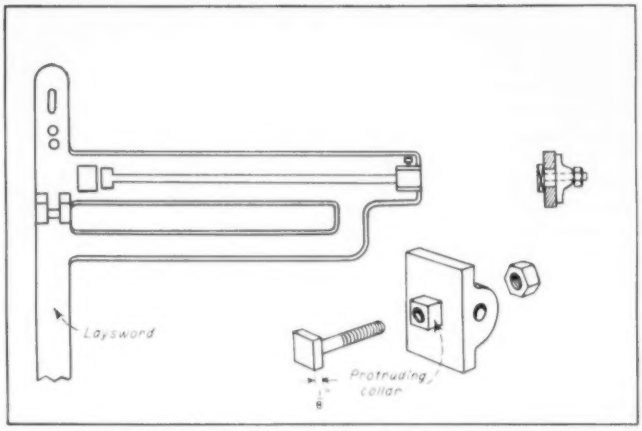
The inside picker-rod stands on our 4x4 C&K looms frequently become worn beyond repair. Since this picker-rod stand is part of the laysword, the stand cannot be removed without the removal of the complete laysword.

A loomfixer is often in a tough spot when a picker-rod stand is worn—he doesn't know whether to replace the complete laysword or to patch up the job.

We now make a 15-min. repair job of a worn picker-rod stand. We believe that the repair job gives us results as good as those we got from a new laysword.

We use a file or a hacksaw to shape the protruding collar on a regular outside picker-rod stand so that the collar fits into the square slot at the end of the picker slot of the lay end.

A $\frac{3}{8}$-in. hole, beginning at the threaded hole in the picker-rod-stand collar, is drilled all the way through the casting.



TIME IS SAVED if an outside picker-rod stand is altered to be used in place of a worn inside stand. The altered stand is bolted in the square slot at the end of the picker-guide slot.

The shuttle box is removed from the loom.

Our machine shop cuts the heads of $\frac{3}{8}$x2$\frac{3}{4}$-in. bolts to a $\frac{1}{8}$-in. thickness, and one of these bolts is inserted from the front of the lay end through the altered picker-rod stand. The stand is then locked to the lay end with a nut.

The shuttle box is replaced in the loom.

Picker-rod stands that are repaired this way last for a long time, save us money in loom downtime, and make our loomfixers happy because they are saved a lot of work. *Lloyd Senft, Allentown, Pa.*

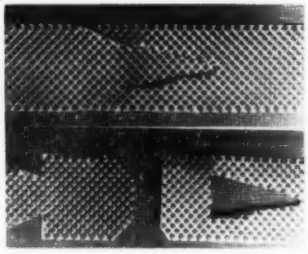
Splice Take-up-Roll Covering; Save Time, Money, Material

On a loom equipped with a high-roll take-up, most of the fillet breaks are near the end of the take-up roll. We used to replace the whole cover when the fillet broke.

When such a break occurs, the remainder of the fillet is often still sharp and serviceable, and by splicing a short length of new fillet with the old, you can make the cover as good as if the entire roll were re-covered.

For splicing purposes, the odd lengths left from each roll of fillet can be used to eliminate the waste of from 1 to 40 ft. of fillet from each 500-ft. roll. The splice can be made easier and quicker than the take-up roll can be stripped and re-covered. Full service life can also be obtained from all the fillet.

To make the splice, the fillet on the take-up roll is cut behind the break, and a triangular hole is cut in the fillet with a sharp chisel. For $1\frac{1}{2}$-in. fillet, this hole should be about $\frac{3}{4}$ in. wide and exactly $1\frac{1}{2}$ in. long. A notch is cut in each side of the new fillet about 2 in. from the end, and this piece of fillet is turned at right angles to the fillet on the take-up roll. The notched end is inserted in the hole. The new fillet is pulled parallel to the old and wound tightly on the roll. *W. C. Westbrook, Trion, Ga.*



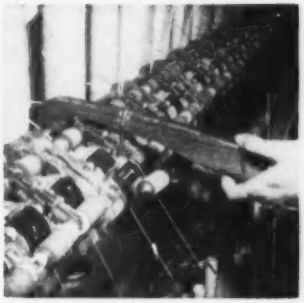
SPLICE THE COVERING on the ends of old take-up rolls—you don't have to re-cover the whole roll. At the top you can see the method used to splice the covering, and at the bottom is the finished splice.

Roll-Unweighting Levers Easily Lift Spinning Saddles

We got tired of struggling to lift spinning-roll saddles with screwdrivers and other small tools when we had to unweight a roll to remove it from the frame. So we made a couple of lever hooks that take the strain out of the job.

Both levers are shown in Picture A. The lever held in the overseer's right hand is used to lift the saddle off the front roll, as shown in Picture *B*. The notched end of the lever is placed on the cap-bar rod behind the back roll, and the hook on the lever is placed under the roll saddle. The handle end of the lever is lifted, as shown, with the cap-bar rod serving as a fulcrum. When the saddle is lifted clear of the roll, the roll can be easily taken out of the cap bars.

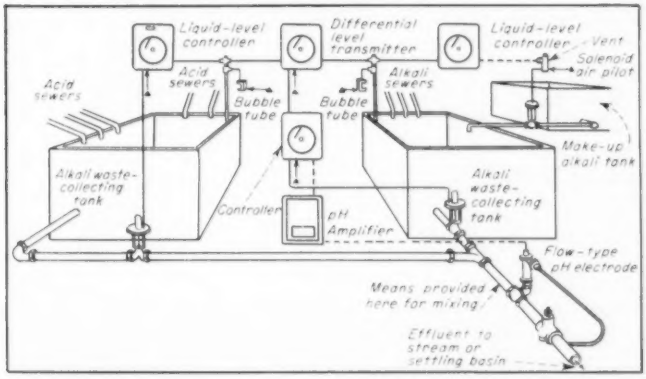
The lever held in the overseer's left hand is used to unweight back rolls. To use it, the hook is placed under the roll saddle just in front of the back roll.



THESE ROLL-UNWEIGHTING LEVERS make the job of changing spinning rolls easy. The frame shown in the pictures is ready for the front rolls to be changed. With the new rolls resting on the thread guides, the fixer lifts the saddle with the lever as shown in Picture *B*, removes the old roll, and replaces it with a new roll. In Picture *A*, the lever held in the overseer's right hand is used to unweight front rolls, and the lever in his left hand is used to unweight back rolls.

Then the lever is lowered so that the hump on the lower side rests on the saddle above the front roll. Downward pressure on the lever handle lifts the saddle off the back roll. *C. L. Hall, Bon Air, Ala.*

Use Spent Alkali To Neutralize Acid Waste



TO DUPLICATE THIS SETUP you'll need three controllers, a transmitter range, three air-operated valves, a pH amplifier, and a flow-type electrode assembly. Relatively small waste-collecting tanks can be used.

Acid and alkaline wastes at a well-known New England finishing plant are effectively neutralized with a pH-control system that furnishes conditions for optimum biological activity and efficient waste disposal.

The separate wastes are collected in equalization tanks. To create a neutral pH condition in the underground mixing basin, a closely regulated flow of acid waste is mixed with the alkali. The resulting effluent is then further treated on trickling filters.

The pH is controlled by a recording controller located in the pump house. A small circulating pump supplies a continuous sample to a flow-type electrode. As the measured pH changes, the controller operates a 3-in. rubber-lined valve in the acid line.

Since the efficiency of this waste-disposal system depends on an unchanging neutral pH, control is automatically maintained within the desired tolerance limits despite variations in acid and alkaline waste.

The system evens out surges of waste-acid flow and is unaffected by changes in concentration or flow. *The Foxboro Co., Foxboro, Mass.*

How We Return Hotter Water to Boilers

Our boiler efficiency has gone up since we rigged up our system to make the return water hotter.

We ran a ½-in. pipe from the first stage of our steam-operated boiler-feed pump to the return-water line. We simply removed a petcock that was on the first stage and put our pipe in.

Instead of allowing the back-pressure steam to feed squarely into the return-feed line, we plugged the end of the pipe, drilled holes in the side, and let the steam spray both ways about 2 in. down in the pipe. The valve stays open all the time.

Not only do we get hotter return water—we also benefit from less vapor bounce at the pump and less trouble from flash steam. The same arrangement can be used on motor-driven pumps because there's always a small plug in the first stage in which you can put the auxiliary pipe. *H. L. Crocker, Clinton, S. C.*

Safety Suggestions

Never run while carrying a box or pushing a truck. Walk—you have plenty of time.

When you blow off a machine, be sure that there is no one on the other side. The air might injure them, or you might blow something in their eyes. *Avondale Sun*

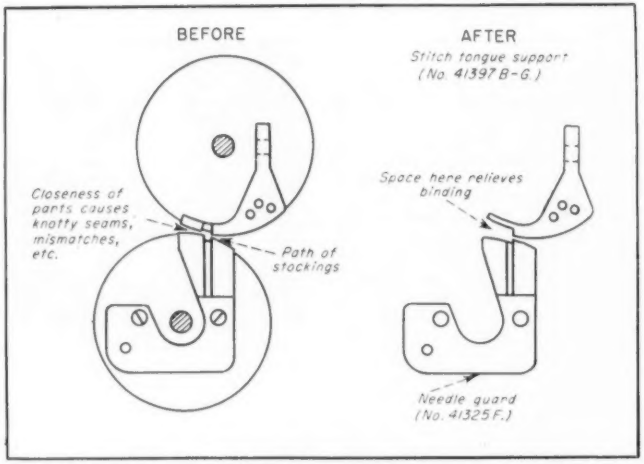
Grind Off Projections To Get Better Seaming

In hosiery seaming, frequently a seamer operator will complain of mismatches in the heel splicing, narrowings, shadow welts, and picots. Quite often no amount of adjusting the fabric uncurler and other related parts will improve the condition.

After considerable experimenting, I found that the extensions on the stitch-tongue support and the stationary needle guard were the principal sources of trouble. When I ground off the projections, which extend to the left-hand side of the needle when you take the position of operator, the seamer operator invariably remarked that the stockings went through the machine much more smoothly.

A few moments' consideration of the diagram will show why filing the extensions is a remedy for mismatches, knotty-appearing seams, and drawn stockings. The work passes through the machine from right to left as you face it. Work should be firmly supported by the square edges of the stitch-tongue support in the back and the needle guard on the front. The needle travels backward and forward in the grooves provided in the aforementioned parts and forms the seam in the stocking on the part of the stitch tongue located directly above the needle. The seam adds bulk to the selvage of the stockings, and as it tries to pass through the narrow opening afforded, it hangs on the shoulders of the stitch-tongue support and needle-guide block. When the parts are cut as shown in the sketch, the work flows smoothly.

Cost savings cannot be computed directly, but anything that prevents re-seaming cuts expense. *Sam Boyer, Charlotte, N. C.*


BEFORE
AFTER
Stitch tongue support (No. 41397 B-G.)
Closeness of parts causes knotty seams, mismatches, etc.
Path of stockings
Space here relieves binding
Needle guard (No. 41325 F.)

PROJECTING EDGES of the needle guard and stitch-tongue support are ground off on a fine-grit wheel to give better seaming. Sketch at left shows the parts within the feed cups; sketch at the right shows the parts in the same relative position but with the cups removed.

Although the parts and numbers shown are for the Union Special hosiery seamer, Class 41300, the alteration of similar parts is said to work satisfactorily on Singer hosiery seamer, Type 242-1.

Serviceable Sweep Sticks Made From Old Picker Sticks

To reduce our loom-maintenance cost, we use our old and broken picker sticks to make sweep sticks.

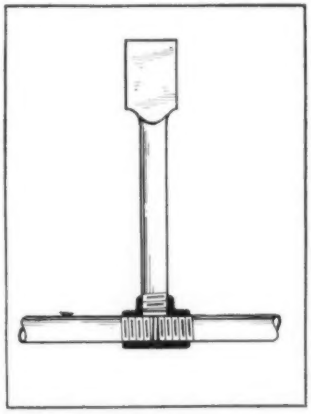
We cut the plywood sticks to the length of a sample sweep stick and bore holes in the plywood.

These sweep sticks often last as long as new sweep sticks. *Bernard Dixon, Danville, Va.*

Put Handles on Weights

The builder motion on our spinning frames is balanced with a heavy iron weight. When we had to remove this weight to repair the frame, we had to wrap our arms around the weight and lift it against our clothing.

"Why not put a handle on it?" I said. So we drilled and tapped two holes for cap screws and fastened a handle to the weight. The result: easier, quicker, and safer handling of the weights. *Harold Gunst, Portland, Ore.*



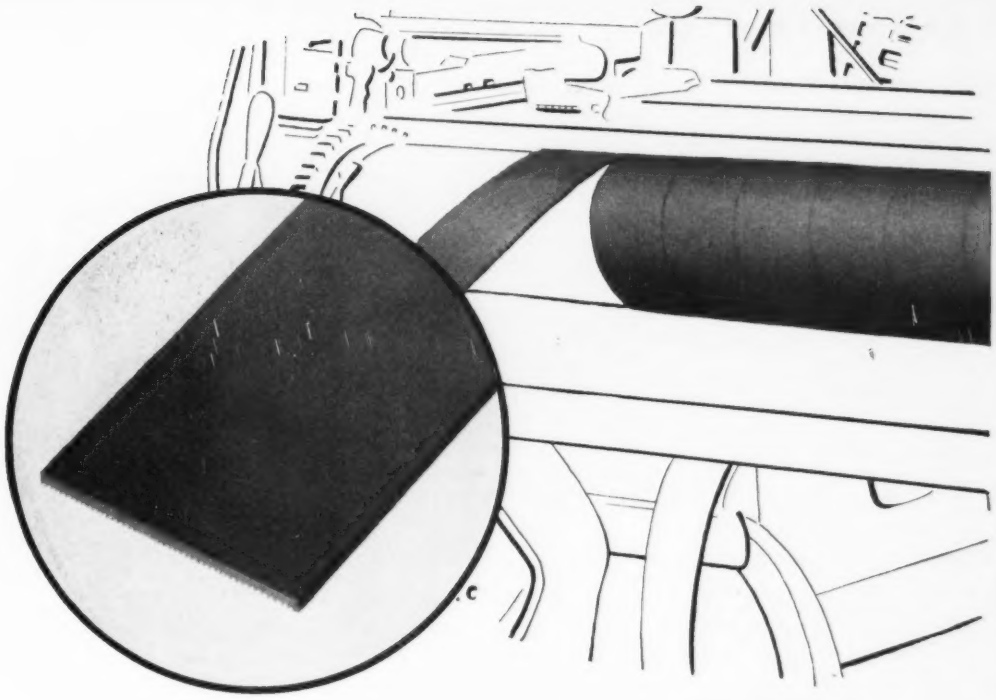
Grounding Conduit

A RUN OF CONDUIT can best be grounded by screwing into the conduit a three-entry T-piece. Screw into one of the entries a 2-ft. piece of copper rod. This rod is flattened at one end so that it can be drilled and threaded to take ground connections. *W. E. Warner, Essex, England.*

Our Conduits Have Low-Resistance Joints

It is necessary for conduit to make a low-resistance circuit for ground currents. High resistance in conduit is often due to screwed joints having a high electrical resistance—a condition usually due to the threads being loose, torn, or partly rusted because of a bad fit.

To prevent this condition when making screwed joints, start the threads for a short distance, then make up a thick paste from fine lead filings and gasoline. Paint this paste on the remaining threads, and screw the threads tight. The gasoline will soon evaporate, and the lead will be ground hard into the threads to make a highly electrical-conducting and watertight joint. *W. E. Warner, Essex, England.*



NEW, SMOOTHER ROLL COVERING
gives amazing take-up tension

If you need firm, even take-up tension, free from the risk of marking your high-count fabrics, try Armstrong's NO-732 Take-Up Roll Covering.

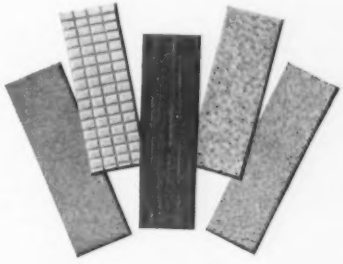
NO-732 is made of a new type of synthetic rubber compound that offers amazing friction—up to twice what you'd expect from rubber. At the same time, it has a smooth surface that won't mark the most delicate work.

To prove to yourself what a remarkable grip it has, rub a sample of Armstrong's NO-732 on any surface: your desk, your clothes, the cloth you spin. You won't believe such a material is possible until you make this test. You can get a sample and complete information from your Armstrong representative or from your regular source of mill supplies.

NO-732 comes in widths up to 4 inches, in roll lengths up to 150 feet. Armstrong Cork Co., Textile Products Dept., 5008 Arch St., Lancaster Pa.

ARMSTRONG OFFERS A FULL LINE OF TAKE-UP ROLL COVERINGS

Whatever your preference, Armstrong can supply a wide choice of take-up roll coverings of synthetic rubber, cork and synthetic, plain or gridded cork.



ARMSTRONG'S TAKE-UP ROLL COVERS

Product of the Armstrong Cork Company, Textile Products Department, Lancaster, Penna.

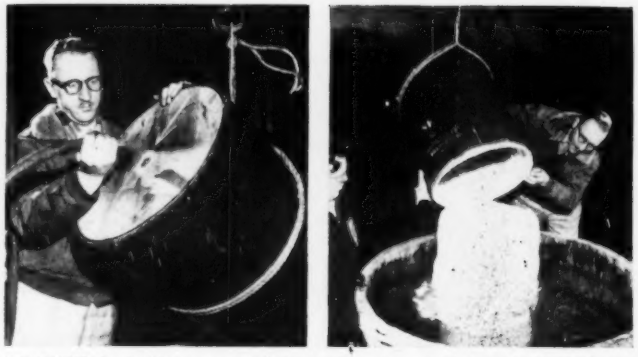
Kinks AND SHORT-CUTS

Air Pressure Used To Unload Fiber Drum

A finishing paste used for shrinkage control and crush resistance used to be shipped in steel drums. At the finishing plant, the drum was heated to remove the material.

When the chemical manufacturer replaced the steel drum with a fiber drum so that the paste would not be contaminated from failure of the lacquer lining on the steel drum, unloading the drum became a problem. The fiber drum obviously could not be heated.

The solution: air pressure. A ¼-in. hole was drilled in the bottom of the drum and plugged with a cork. To remove the paste, all the finisher has to do is pull the cork and apply 10 lb. of air pressure at the hole. *Rohm & Haas Co.*



AIR PUSHES the finishing paste out of the new fiber drum. Steel drums had to be heated to liquefy the material before removal.

Smoking Allowed at Work

A new approach to the problem of smoking in industrial plants is this: emphasize the positive side, i.e., tell your employees where they can smoke instead of where smoking is prohibited.

One organization, Standard Pressed Steel Co., Jenkintown, Pa., recently distributed a "Smoking Allowed" booklet to its 2,000 employees and got terrific cooperation because of the friendly and humorous way in which the rules were presented.

Running Direction of Belts

Always have the outside feather edge of the lap on a belt faced away from the direction in which the belt runs. If you do this, you'll protect the outside points of the lap from guards, guides, or shifters. And you'll also prevent the lap from being opened up by windage. *Leather Belt Drive News.*

Safety Verses

Don't flip your sacroiliac
Lift with your legs . . .
And not your back.

* *

Horseplay and guys who are pleasure bent
Cause many a lost-time accident.
When it happens they're usually filled with remorse . . .
In addition they feel like the rear of a horse.

Avondale Sun

$500 for Best Kink in 1952
$25 for Best Kink Each Month

In Addition to Space Payment on Acceptance

You undoubtedly know many kinks and short-cuts that are helpful to mill operators. Write them down and send them in. We pay promptly on acceptance—before publication. In addition, your kink may win the $500 check for the best kink of the year or the $25 check for the best kink of the month; maybe both!

Send in your kink now. There is always a contest going on. The more good kinks you send in, the better your chances of winning a prize in addition to earning some easy money for every kink accepted.

We will polish up your writing and will have an artist make finished drawings. But send in plenty of details so that your kink can be clearly explained. Be sure your sketch is clear and well labeled, but it need not be a polished job. Best of all, send us a good glossy photograph of it—we will pay you extra if you do and we can use it.

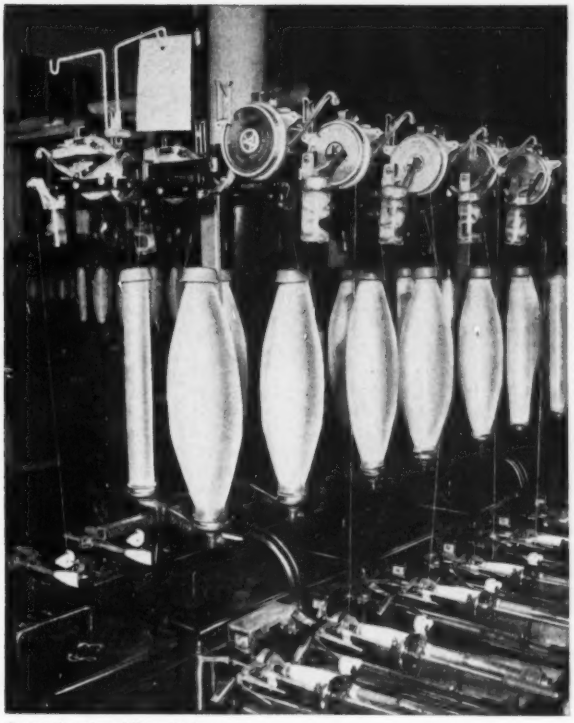
Look over the kinks in this and other issues. You will get ideas you can use as well as inspiration for kinks you can send in. We like items that pertain to ways for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.

Your published kink will be judged impartially by other mill men. In cases of ties, duplicate prizes will be awarded.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to kinks published that month, yearly to those published in calendar year 1952.
3. All kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred kinks in each issue. Their votes will select the best kink, and their decision will be final.

Send kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.



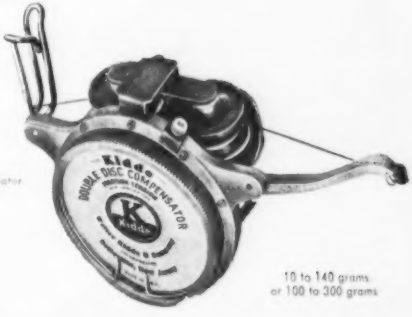
Photograph courtesy of Cheney Brothers

how Universal 90 Winders are Tension Controlled at mills weaving nylon fabrics

Ever hear of using Universal 90 Winders to wind from nylon pirns directly to quills? It can be done with Kidde Double Disc Compensators. Kidde Compensators prevent deformed and crushed quills. They control tension *at* bunch and *throughout* the quills, and prevent sloughing off due to soft quills.

Kidde Double Disc Compensators are precision instruments that assure you of precision tension control on all kinds of synthetic yarns. Once they are set, they maintain the proper tension indefinitely.

Write today for full information.



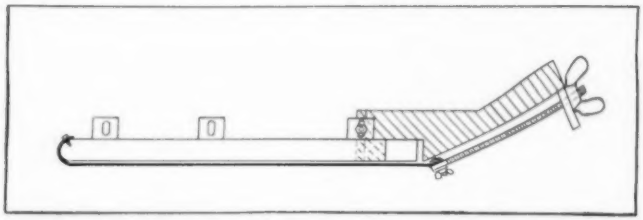
Kidde Double Disc Compensator

10 to 140 grams
or 100 to 300 grams

Kidde

Walter Kidde & Company, Inc.
891 Main Street, Belleville 9, N. J.

Tight Box Fronts Are Assured With This Jig



BOX-FRONT JIG is used to stretch the leather taut. The jig is removed as soon as the leather is screwed to the box front.

We felt for a long time that we were having shuttles to box irregularly in both our C&K and Draper looms because the box-front leather was not tight enough.

We made a jig that we now use to stretch our leather tightly on our box fronts.

The jig, made from ¼x1-in. strap iron, is cut to fit the end of the box front. A stud is welded to the jig at one end to fit into the slotted part of the box front that is held to the shuttle-box plate with a cap screw.

A ⅜x4-in. machine bolt with the head cut off has a $\frac{3}{16}$-in. hole bored near the head end for a small screw. A ¼-in. screw, two square washers, and a wing nut are placed in the hole to fasten the box-front leather to the bolt.

The threaded end of the 4-in. bolt is placed through a hole in the jig, and a wing nut is placed on the bolt.

One end of the box-front leather is screwed to one end of the box front in the usual manner, cement is applied to the leather, and the other end of the leather is fastened to the bolt in the jig. The leather is stretched by turning the large wing nut on the jig, the leather is screwed to the box front, and the jig is removed.

We found that our box-front leathers cracked when we bent them around the end of the box front near the outside of the lay end.

Now we don't bend the leathers around the end but fasten them from the face of the leather with two flat-headed, $\frac{10}{32}$-in. screws. The screws imbed themselves in the leather and do not damage the shuttle.

Care must be taken to prevent stretching the leather too tightly.

Our shuttles box more accurately, and our box-front leathers last longer since we have been using our jig. Charles R. Batzer, Lancaster, Pa.

5-Gal. Oil Reserve Saves Time in Oiling Spindles

SPINDLE OILING is fast and easy with this homemade oiling system.

We first made a truck that provides a seat for the spindle oiler and a platform for a 5-gal. oil can. The oiler pushes the truck along as he oils the spindles.

A flexible hose was tapped into the side of the oil can near the bottom, and a small plunger-type oil cup was put on the other end of the hose. As the oiler oils the spindles by pressing the trigger of the oil can, new oil flows from the 5-gal. reserve tank into the oil cup. C. L. Hall, Bon Air, Ala.

Take Slack From Selvages With Pieces of Leader Wires

Our selvages used to run slack, and as a result many ends broke out. The cloth also pulled out of the temples.

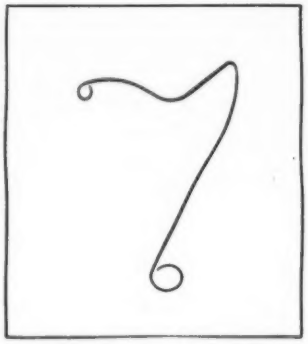
We now use pieces of leader wire to keep our selvages tight.

The pieces of wire are bent to form a cradle with a hook at the bottom to bolt the wire to the loom.

A piece of the wire is placed under all the selvage ends near the whiproll back of the drop wires. The hook is bolted to the loomside.

The hook is bent so that it continues to spring upward, and the selvage ends are therefore kept taut.

Our spun-rayon suiting runs much better on the looms since we've been using the wires. Bernard Dixon, Danville, Va.



CUT A LEADER WIRE, bend it to this shape, bolt the wire to the loomside with the cradle underneath the selvage ends, and you can keep slack selvages tight.

Best-Kink Award for June

Each month TEXTILE WORLD awards $25 to the submitter of the kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the kink appears.

The best kink for June, according to TEXTILE WORLD reader-judges, was:

"Gauge To Align Shuttle-Bobbin Holders"

Joseph Labonville, Manchester, N. H.

Mr. Labonville is being sent a check for $25 with the compliments of TEXTILE WORLD

Always Uniform

Starch, as well as golf balls, requires precision control in every manufacturing step to maintain unvarying high quality.

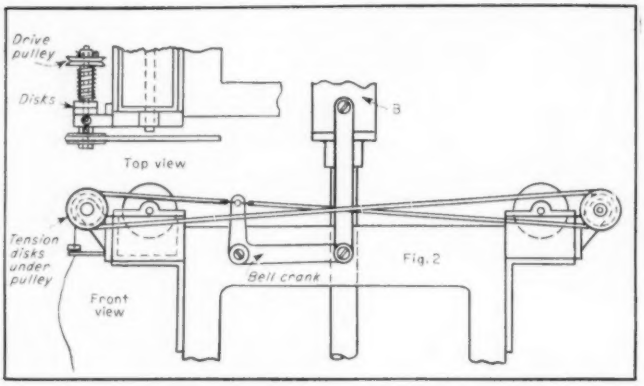
That's why over the years Victor Mill Starch has become known far and wide as "The Weaver's Friend."

Victor provides better penetration, stronger warps, smoother surface, less shedding, fewer slashing problems. Rely on it . . . and the Keever man who serves you.

TEXTILE SALES DIVISION
1200 WOODSIDE BUILDING
GREENVILLE, SOUTH CAROLINA
Charles C. Switzer, Manager

THE KEEVER STARCH CO. ★ GENERAL OFFICES ★ COLUMBUS 15, OHIO
Corn, wheat and other grain products for industry since 1898

Bobbin Winder Has Reciprocating Tensions

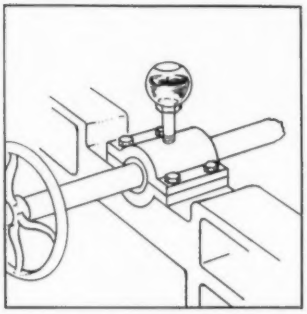


In conditioning worsted yarn for our full-fashioned knitting machines, we had serious trouble with soft-nosed bobbins caused by lint and slubs that collected in the disk tensions. In knitting, yarn from the soft noses would sometimes run in triple or heavier and break a lot of needles.

In order to keep the tensions clean, we devised a simple method of reciprocating them a revolution in each direction.

We made small brackets for the ¼-in. shafts that run the length of the emulsion boxes, drilled the tension-disk holders for the shaft, and secured the disk with small cotter pins. Small grooved pulleys carried a ¼-in. belt whose ends were connected to a bell crank that was mounted on the end of the winder frame. A vertical link was fastened to the end of the builder and the bell crank. The up-and-down movement of the builder (about 3 in.) was reduced by the short arm of the bell crank to a little over the pitch circumference of the pulleys. The long emulsion rolls were turned slowly by belts at the other end of the winder.

Crankshafts and Camshafts Can Be Made Self-Oiling



THE OIL BOTTLES are the type that were used on old-type Draper looms. Each bottle is about the size of a baseball and holds enough oil to last for several weeks, since no oil is wasted.

C-4 looms that do not have automatic oiling systems require a lot of attention by the oiler.

We removed the small oil cups from the end bearings at the crankshaft and camshaft and replaced the cups with oil bottles.

We cut pieces of ⅛-in. pipe into 1½-in. lengths and threaded one end of the pipes with a ⅛-in. pipe die.

Then we screwed the pipes into the bearings and placed oil bottles in each pipe. The wicks in the bottles feed the oil to the bearings as oil is needed.

We are now sure that the crankshafts and camshafts are constantly lubricated. The bottles are refilled only by the warp men when warps are out. *Bernard Dixon, Danville, Va.*

Fasten Glass Rods Permanently in Backstays

The flexing of the backstay on our S-model looms used to break the glue loose from the glass rod. The loose glass rod bowed up in the center and caused the bottom warp shed to deflect the shuttle from its true flight. As a result, a high shuttle was thrown, and warp ends were broken. The shuttles also stayed rough on the top from contact with the shuttle boxes.

We made a clamp to hold the glass rod to the center of the backstay.

The clamp is made from a ½-in. tube of stainless steel cut into sections 1 in. long. A ¼x1¼-in. cap screw (same size of cap screw used originally in the backstay) is welded to the 1-in. length of stainless-steel tubing. The head of the cap screw is placed against the center of the tubing, lengthwise, opposite the cap-screw head. A ½-in. length of the tubing is ground out on a square-cornered emery wheel. The outside edge of the split tubing is then beveled smooth.

MAKE FIFTY CLAMPS at a time so that each loomfixer will have a supply to place in the looms when warps are out. If you are in a hurry, you can place the clamps in the looms at cut marks.

The clamp can be fastened to the glass rod and the backstay while the backstay is in the loom if you:

1. Take the back screw from one of the clips for the glass rod and remove the rod

2. Remove the center cap screw from the routed surface of the backstay

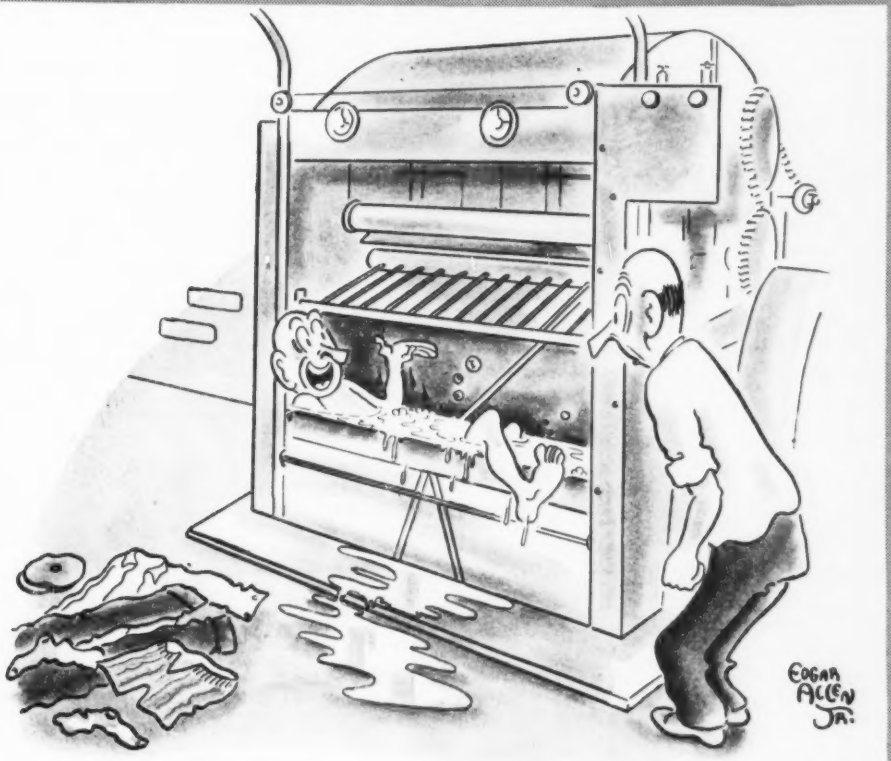
3. Chisel a small place to recess the tubing in the backstay

4. Spread the tubing open enough to slip it to the center of the glass rod, and replace the glass rod in the backstay so that the cap screw on the clamp is through the center hole of the backstay

5. Replace the screw in the clip for the glass rod

6. Put a spring washer and a nut on the center cap screw, tighten the nut securely, but do not break the glass rod

A glass rod that is fastened this way will not come loose. *B. F. Blackwell, Greenville, S. C.*



"Swift's Soaps do so much for our textiles, I wanted to see what they'd do for me!"

Leave it to a textile man—he really believes in Swift's Soaps. At least, that's our impression when we talk to all the successful operators who consider Swift's Soaps tops for dyeing, fulling, scouring and other specialized service.

You, too, will find that Swift has the *right* soap for *every* textile need. And more, Swift's Soaps combine proper uniformity of composition with excellent physical form.

If you're faced with a unique, especially tough soap requirement, call on us. Our years of soap-making experience can help you find a soap that fits your particular operation.

Listed below are some of Swift's fine soaps. You can order any one of them from Swift's distribution points coast to coast and expect immediate delivery.

Vertex Flakes
557 Flakes
White Ribbon Flakes
Wool Flakes

 For more information, write direct or use Reader Service post card.

We Made Bottom-Roll Clearers For Our 1907 Bradford Reducers

When we started running nylon stock in our mill, we found that the bottom front nip rolls on our 1907 Prince-Smith & Stells Bradford reducer collected stray fibers, and laps were formed that affected both the running of the work and the quality of the final roving.

As this frame had no bottom clearers on it as standard equipment, we decided to make our own to see if we couldn't clear up this annoying problem. We have equipped the whole frame with these home-made clearers attached to the back rod by individual springs of a length and stiffness that will hold the clearers against the rolls, yet will allow them to be easily pulled away from the rolls for cleaning. We haven't had any more trouble in that line since.

The clearers are made of ordinary pine wood and plywood large enough to rest solidly on the machine table and to be pulled back snugly against the bottom roll by the spring. The concave clearing surface is lined with hard felt that picks up the stray fibers and holds them. The clearer itself is made in three pieces, fitted and nailed together.

Dimensions of the clearer are: 2 in. wide at the top, 4 in. wide at the bottom, and 3 in. deep. *W. E. Neil, Granby, P.Q.*

BOTTOM-ROLL CLEARER for Bradford reducer is held against roll by spring. Hard-felt covering picks up stray fibers. Operator just pulls clearer out of contact for cleaning.

How We Reduced Picker-Stick Breakage

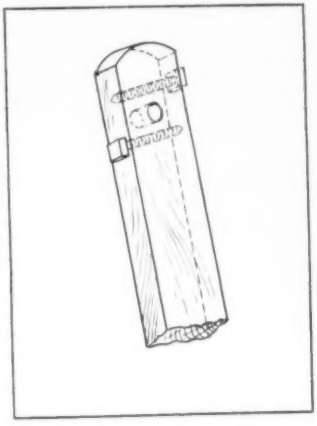
Picker sticks used to break rapidly on the head end of our C-6 looms, especially when the shuttle box hung.

Most picker sticks have two rivets placed near the hole for the picker-stick stud to brace the stick. As long as the rivets remain, the stick does not break, but the rivets do not last long. Either the head or the burr of the rivets comes off.

To reduce this breakage, we have our picker sticks made without rivets.

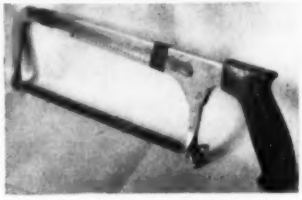
We drill two ⅜-in. holes—one an inch above and one an inch below the hole for the picker-stick stud. We screw ⅜x2-in. lag screws in these holes, one screw from each side.

The lag screws strengthen the stick substantially, and the stick therefore lasts much longer. *C. R. Batzer, Lancaster, Pa.*



LAG SCREWS replace rivets in picker stick. One lag screw is screwed into each edge of the stick.

Carry Spare Blades Right on Your Hacksaw



TAPED TO THE FRAME, these spare hacksaw blades are ready for action. You should keep both fine and coarse blades with you.

When you work with a hacksaw away from the tool box or bench, it's a nuisance to walk a long distance to get a replacement blade if one breaks.

Fresh blades are always handy if you fasten one or two spares to the backbone of the saw with two wrappings of adhesive tape. It's a good idea to store fine- and coarse-toothed blades on the frame together so that most metal thicknesses can be tackled without delay.

The spare blades do not interfere with the normal action of the saw in any way. *Clifford T. Bower, London, Eng.*

How To Remove Sunken Nuts

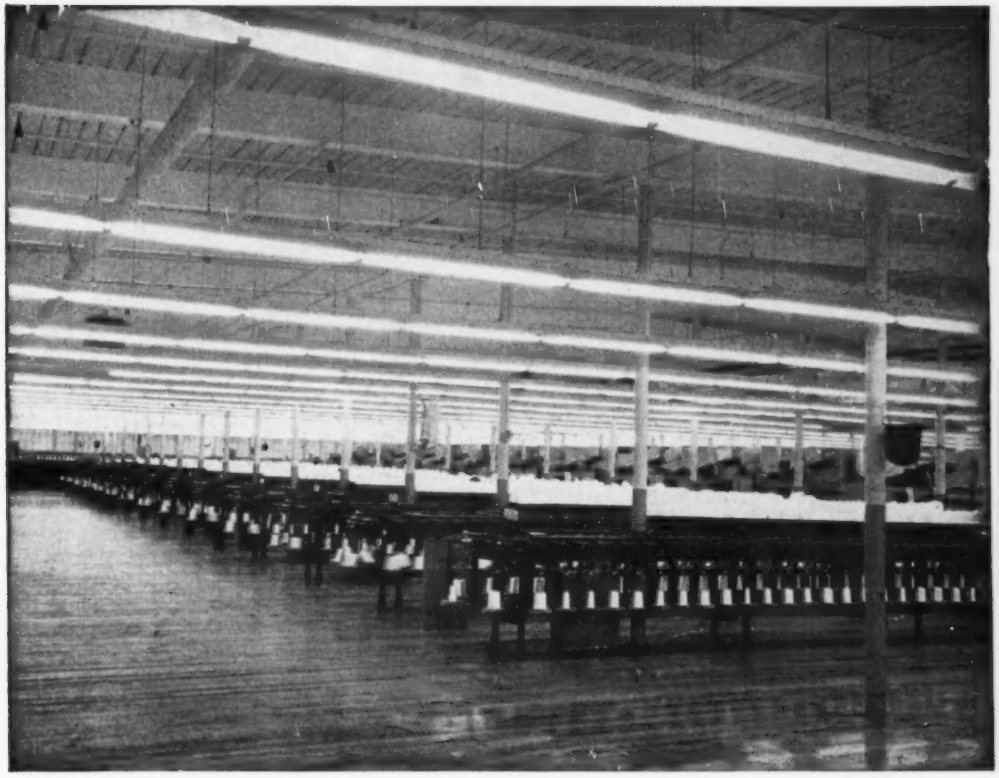
Ever have a nut caught in a tight spot? If you don't have a box wrench, you ought to fix yourself a special tool.

Get a round steel rod about 12 in. long, recess the end of it, and cut some left-hand threads in the recess. The threads should fit the bolt on which the stuck nut is screwed. Knurl the remaining shoulder of the rod.

To remove the nut, screw the rod onto the bolt until the knurled shoulder bites into the nut. Keep turning, and the nut will loosen and screw out. *W. E. Warner, Essex, England.*

ABBOTT MACHINE

INSTALLATION OF AUTOMATIC RAYON QUILLERS



Twelve Abbott Automatic Rayon Quillers with Pinboard Attachments are run by only *six* operators in the above mill installation. Such an efficient installation achieves lowest operating cost with maximum production per operator.

Empty loom bobbins are automatically loaded and filled. Full loom bobbins are automatically doffed onto pinboards, which permits one operator to handle up to 240 spindles.

One of our representatives will be glad to study your filling winding requirements and submit a proposal for your consideration.

ABBOTT MACHINE CO., INC.

FACTORY AND MAIN OFFICE:
WILTON, NEW HAMPSHIRE

SOUTHERN OFFICE: GREENVILLE, SOUTH CAROLINA

Richards-Wilcox "Zig-Zag" Continuous Power Conveyor can save you *Thousands of dollars Yearly!*

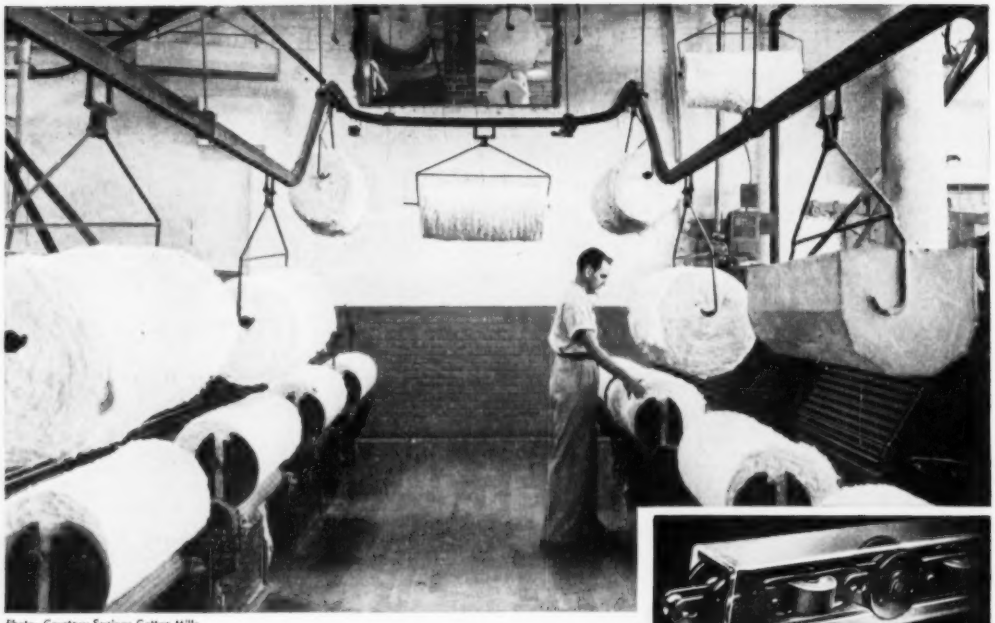
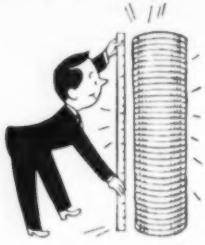


Photo: Courtesy Springs Cotton Mills



Yes, it's a proved fact that R-W Zig-Zag Continuous Power Conveyors can help save thousands of dollars in operating costs, and help raise production to boot. Patented ZIG-ZAG operates just like "water through a pipe"—it's a steel tube-like track through which travels a specially constructed motor-driven chain carrying unit loads up to 125 pounds each.

Zig-Zag solves handling problems in crowded or confined areas—increases efficiency and adds economy to any production line.

Engineered for economy and flexibility, here's what Zig-Zag has to offer you—

- Horizontal and vertical units alternate in a continuous chain traveling through special steel tubing.
- SAFE—all moving parts fully enclosed.
- Complete flexibility for installation in any plant. Easily installed, easily changed to conform to plant alterations.
- Low first costs. Low Power Factor.
- Standard horizontal or vertical curves—two-foot radius.

For complete information consult, without obligation, our engineers at the Richards-Wilcox office nearest you.

Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"

AURORA, ILLINOIS, U.S.A. *Branches in all principal cities*

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New Textile Equipment
New Dyes & Chemicals
New Useful Accessories
Editorial Articles
and the Advertisements

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. . . to send a Kink, a letter for Round Table, or a news note.

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Dear Editor AUGUST, 1952

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Outstanding TRADE LITERATURE *Free for the Asking*

NO REPEATS... Listed here for August are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY

Slashers are the subject of a comprehensive catalogue issued by Cocker Machine and Foundry Co. The catalogue analyzes and describes in detail various components of the slasher—the head, cylinder section, size box, and creel. Cooking and storage equipment is also shown. **(F-1)**

A new filling feeder for C&K automatic bobbin-changing looms is described in a folder made available by the A&W Machine Co. The feeder is a compact device that replaces the indicating fingers of the magazines. With the attachment, the loom uses only two shuttles, but the four cells of the magazine are in operation, two for each shuttle. **(F-2)**

The SRRL cotton opener is described in literature available from one of the licensees, Salisbury Iron Works, Inc. **(F-3)**

A jersey-knitting machine that makes "vent-knit" cloth is described in a folder issued by Supreme Knitting Machine Co., Inc. This air-cooled fabric is said to have never before been made on circular jersey-knitting machines. Weight and dimension specifications are given along with features of the new machine. **(F-4)**

Distinctive underwear is said to be made on the ribbed-jacquard machines described in a catalogue from Mellor Bromley & Co., Ltd. The three machines described are: two jacquard-pattern, tuck-stitch, shaped-vest machines and a jacquard-rib, loop-transfer, shaped-vest machine. Seven exclusive features of the three models are illustrated. **(F-5)**

A new raschel machine is described in a folder issued by Robert Reiner, Inc. The new high-speed, all-purpose unit comes with one or two needle bars and up to eight guide bars. It is offered in 24-, 36-, and 40-gauge models. **(F-6)**

A power-driven flat knitting machine is described in a folder issued by The Knitting Machine & Supply Co. This machine, made by Stoll, is said to be fully automatic and is built 60 in. wide in gauges of 4, 5, 6, 7, 8, 10, 12, and 14. **(F-7)**

The Vario-coner, a new cone winder for cotton, wool, worsted, spun rayon, mixed yarns, spun silk, etc., is described in a folder issued by American Schweiter Co. The cross-wound package that the machine makes weighs about 4½ lb. The self-threading yarn guide automatically keeps the end in the yarn-guide slot. **(F-8)**

A new label sewer that is said to sew hanger-type labels to stay is the subject of a folder prepared by The Reece Corp. The automatic machine features an overcast stitch. **(F-9)**

Twisting or laying of rope, cord, twine, thread, and certain wires is the subject of a folder prepared by Haskell-Dawes Machine Co., Inc. Specific mention is made of the company's 8- and 10-in. two-head twister; their 12- and 14-in. totally enclosed twister; and the 12-head twister-buncher. **(F-10)**

AUXILIARY EQUIPMENT

The fundamentals of instrumentation are covered in a booklet published by Minneapolis-Honeywell Regulator Co., Brown Instruments Div. The booklet covers the fundamentals of measurement, control, and transmission of variables encountered in industry. Typical applications are also discussed. **(F-11)**

A yarn checker for spinning variations is shown in a leaflet prepared by Standard Electronics Research Corp. The instrument described measures yarn diameter and average variations on the spinning frame as the yarn is being spun. **(F-12)**

A horizontal-belt conveyor that is particularly recommended for inspection, packing, and sorting is shown in a folder issued by The Rapids-Standard Co., Inc. The bulletin also explains how the right length, width, and height of a conveyor can be had by combining low-cost standard sections. This feature is said to provide made-to-order service of custom-built conveyors at a fraction of custom cost. **(F-13)**

The Stoll flex tester is the subject of a leaflet prepared by Custom Scientific Instruments, Inc. The instrument tests the effect of resin finishes, the effect of different fiber mixtures, and other factors that affect the wear resistance of a fabric or yarn. Pilling and fatigue can also be measured. **(F-14)**

Double-reduction speed reducers are featured in a new catalogue from De Laval Steam Turbine Co. Complete data is included on horsepower, output

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Reader Service (Continued)

torque, and center distances for reductions up to 6,400 to 1. **(F-15)**

Three-dimensional microscopes in a new series are described in a catalogue made available by Bausch & Lomb Optical Co. Besides providing unreversed, stereoscopic images, the new microscopes include a dustproof seal in the prism housing, dustproof nosepieces, interchangeable objectives, extra-wide focusing racks, sliding nosepieces, and models that swing about the center of the field of view. **(F-16)**

Make-before-break, snap-action switches are described in detail in a data sheet issued by Micro Switch. The switch is said to insure continuity in the operation of an electrically controlled, multistage machine where a temporary complete break in both circuits would otherwise result in stoppage. **(F-17)**

Sixty-one standard models of fractional-horsepower gear motors are listed in a bulletin made available by General Electric Co. The bulletin contains descriptions, cutaway drawings, selection charts, and dimension tables for both concentric-shaft and right-angle-shaft gear motors. **(F-18)**

Open-channel flow meters that measure the flow of water, sewage, effluent, and other liquids through weirs and flumes of all types are described in a new bulletin issued by The Bristol Co. **(F-19)**

Electric-power drives are the subject of a catalogue issued by Sterling Electric Motors, Inc. The catalogue contains descriptive information on variable-speed drives, geared motors, and constant-normal-speed motors in drip-proof, splashproof, totally enclosed, and pipe-ventilated designs. **(F-20)**

Viscosity and temperature is recorded in one curve with the Viscograph, an instrument described in literature made available by Brabender Corp. This recording viscosimeter, capable of increasing or decreasing at a constant rate the temperature of a suspension from 20° C. to 150° C., is said to be particularly applicable to starch and sizing tests. **(F-21)**

"The Electron Microscope at Work in Industry" is the title of a booklet issued by RCA Victor. Several textile applications of the electron microscope are described. **(F-22)**

Tachometers for speed-measuring applications where a wide range of speed measurement is desired in a continuously indicating switchboard instrument are described in a technical data sheet issued by Metron Instrument Co. Range of the instrument is from 1 to 100,000 rpm. **(F-23)**

Oilless bearings for screw conveyors and roller conveyors are shown in a catalogue prepared by Arguto Oilless Bearing Co. The catalogue gives detailed information for the specification, installation, and application of bearings for all types of screw conveyors and roller conveyors, together with operating characteristics of bearings. **(F-24)**

SUPPLIES AND CHEMICALS

Your roll-stripping troubles in carding are now all over, according to a folder from The Textile Laboratories. The seamless roll covers described in the folder are ribbed to pick up all lint and dust and to make it easy to strip off the heaviest accumulation in a few seconds. Elastic-knit construction of the covers is said to make it possible to use one size on all front card-stripping rolls. One other size takes care of dust feed rolls. **(F-25)**

Jet mixers designed specifically for the mixing of wet liquids and solids and for emulsifying, homogenizing, and dispersing applications are described in a catalogue issued by Barrington Engineering Corp. The mixers are said to do their job with the minimum incorporation of air, with little vortex and surface

Why Good Pipe Fitters Choose RIDGID 4P Geared Pipe Threader

No. 4P, 2½" to 4" pipe

Extra easy to carry and put on pipe

★ Balanced loop handles—easy to swing 4P where you want it.

★ Mistake-proof workholder sets to size *before* put on pipe—only one set screw.

★ Practically no upkeep—drive pinion in oilless bronze bearing; safe enclosed gear.

★ 4 sets of 5 high-speed steel dies for 2½", 3", 3½", 4" pipe. Ratchet handle; RIDGID Universal Drive Shaft available. Also special 4P for conduit.

★ Buy efficient 4P at your Supply House.

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

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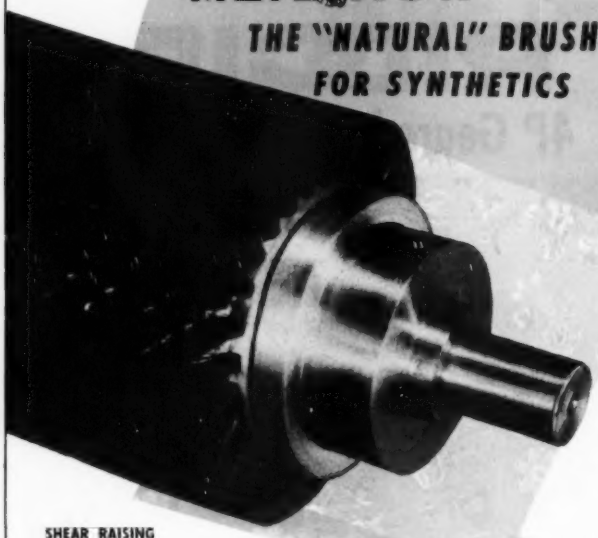
Work-Saver Pipe Tools

METLKOR®

THE "NATURAL" BRUSH FOR SYNTHETICS



SHEAR RAISING

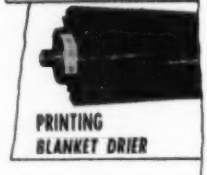
When the synthetics industry blossomed forth some 25 years ago, M. W. Jenkins' Sons brought their considerable experience to the industry. Having designed brushes for textiles since 1877 and keeping abreast of technological advances, M. W. Jenkins' Sons then and since developed a series of brushes specifically designed to meet the new and challenging problems presented.

As with all its products, whether for the textile or other industries, Jenkins' METLKOR brushes for synthetics are the best available. They will not sag, split, crack or get out of alignment, are uniformly tufted, filled, trimmed and spaced to give uniform performance. Set in flat wire, they are wound about a permanent metal core which can be rebristled with the same or any other desired bristle.

For any problem requiring brushes, M. W. Jenkins' Sons is prepared to supply a standard or special brush to meet your need.

FURNISHER

PRINTING BLANKET WASHER



PRINTING BLANKET DRIER

OTHER METLKOR BRUSHES FOR SYNTHETICS:
BRUSHING MACHINE CARDING
BRUSHING PRIOR TO PRINTING

1877 • DIAMOND JUBILEE • 1952

M. W. JENKINS' SONS, INC.

Three-Quarters' Century of Pioneering Brushes for Industry

Cedar Grove, Essex County, New Jersey

Reader Service (Continued)

boil, and with continuous circulation of material from the bottom to the top with no stratification. **(F-26)**

Hose assemblies for all types of textile equipment and machinery are shown in a catalogue prepared by Carlyle Rubber Co. All sorts of couplings, hoses, and assemblies are shown. **(F-27)**

"Dyeing of the Newer Synthetic Fibers" is the title of a bulletin put out by Sandoz Chemical Works, Inc. Indicative of the technical nature of the bulletin is the latest insert that comes with it—how to dye dynel a good black. **(F-28)**

Use of Nacconol NR in the open boil-off of cotton gray goods is discussed in a bulletin issued by National Aniline Div., Allied Chemical and Dye Corp. **(F-29)**

A complete catalogue of products has been prepared by Bryant Chemical Corp. Half the catalogue is devoted to printing and finishing specialties, and the other half describes representative sizes for rayon, acetate, cotton, and spun-rayon yarns. **(F-30)**

A canvas basket that stacks is described in a folder prepared by W. T. Lane & Bros., Inc. Design of the new basket enables you to put one on top of another without having the top one supported by the load in the bottom one. **(F-31)**

A revolutionary method for laboratory observation of the appearance and behavior of textile fibers and the dyebath during the continuous and complete dyeing cycle is described in a new technical bulletin issued by American Cyanamid Co., Calco Chemical Div. The device described—the Microdyeoscope—permits both visual and photographic observation of dyeing phenomena at approximate conditions encountered in the usual commercial dyeing process. **(F-32)**

Automatic titrations can be made with an instrument described in a circular issued by Burrell Corp. The Autotrator, as it is called, is offered as a means of reducing the cost and increasing the output of a laboratory by providing effective, automatic performance of laboratory titrations. **(F-33)**

A handy soap-buying guide has been prepared by Colgate-Palmolive-Peet Co. The guide is said to be able to save you money on soap and soap products. **(F-34)**

An improved mounting designed especially for looms is described in a data sheet issued by MB Mfg. Co., Inc. Besides anchoring looms without bolting, the Isomode pad is said to isolate vibration, reduce noise, and cut maintenance costs. **(F-35)**

The most up-to-date methods of dyeing most of the new synthetic fibers and blends are summarized in a treatise published by General Dyestuff Corp. The publication outlines dyeing methods for these synthetics: Dacron, dynel, Acrilan, Orlon, Vicara, nylon, acetate, Celcos, saran, and Fortisan. **(F-36)**

ENGINEERING AND MAINTENANCE

Industrial lighting that features no welded parts, a parabolic reflector, greater effective shielding, and higher over-all efficiency is described in a catalogue issued by Gibson Mfg. Co. The parabolic shape of the reflector is said to provide maximum down-light in the fringe area within the scope of the reflector. **(F-37)**

The application of direct-connected synchronous motors to reciprocating compressors is discussed in a paper made available by Electric Machinery Mfg. Co. The paper deals largely with the consideration of proper rotor-flywheel effect as a preventive measure for voltage fluctuations when you're driving reciprocating compressors with direct-connected synchronous motors. **(F-38)**

A new, screw-type, rotary pump designed to handle petroleum products and other light fluids for hydraulic systems,

Friend or Foe?

Any lubricant a textile manufacturer uses can be either friend or foe. It will save him money and step up production... or ...waste his dollars and hold up production.

Cities Service Textile lubricants are specifically designed to help increase production on all textile machinery . . . designed to assure you cleaner machine bearings and shafts, and cleaner finished goods, too.

Eliminate wasted time and money . . . Keep production at maximum . . . Use Cities Service lubricants. When you have a lubricating problem, call in the Cities Service Lubrication Engineer. He can help you. Write Cities Service Oil Company, Dept. H38, Sixty Wall Tower, New York City 5.

CITIES SERVICE

Quality Petroleum Products

VISIBILITY UNLIMITED

with

MOBILIFT FORK LIFT TRUCKS

A MOBILIFT operator can see the fork-ends when he picks up a load ...he can see where he's going! There's no groping for the load... no craning around vision-obstructing cylinders. *Unlimited visibility* between Mobil-chain uprights is just ONE reason you get faster, safer, more economical materials handling with Lev-R-Matic Drive MOBILIFTS. Here are other reasons why you can handle materials at less cost with MOBILIFT:

- **Lev-R-Matic PUSH-PULL controls for forward-back movement, lifting and tilting. NO GEARS TO SHIFT.**
- **360° steering wheel makes zero inner turning radius possible with stand-up models.**
- **Compact design for maximum maneuverability.**
- **Easy accessibility for servicing and maintenance.**
- **Powerful 3-cylinder gas engine.**

FOR SAFER FASTER MATERIALS HANDLING

STAND-UP MODEL
2000, 2500, 3000, 3500-lb. capacity.
63", 72", 83" Masts
Special Masts to order.
Write for complete specifications.

SIT-DOWN MODEL
2000, 3000-lb. cap.
63", 72", 83" Masts
Special Masts to order.

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Reader Service (Continued)

rotary- and steam-atomizing oil burners, etc., is described in a bulletin made available by De Laval Steam Turbine Co. The bulletin contains a cutaway section of the pump, complete description, viscosity tables, and dimensions for various frame sizes. **(F-39)**

Resistances as high as 20-million ohms per centimeter are reported for water that has passed through a demineralizer described in literature released by Penfield Mfg. Co., Inc. Available in flow rates from 10 to 10,000 gal. per hr., the demineralizers are said to operate at a cost of less than 15¢ per 1,000 gal. **(F-40)**

Floors without flaws are discussed in a brochure prepared by A. C. Horn Co., Inc. The list of nationally known manufacturers of floors and floor coverings who have tried, tested, and approved the products and methods described in this brochure reads like a Who's Who of the flooring industry. **(F-41)**

Pillow blocks and flange units that feature a new housing design are shown in a bulletin issued by T. B. Wood's Sons Co. The units have a permanent factory lubricant sealed in by a synthetic-rubber seal bonded to a steel core to retain the lubricant and keep out moisture and dirt. **(F-42)**

A 175-page catalogue of worm-gear speed reducers has been prepared by The Cleveland Worm & Gear Co. We don't think there's anything on this subject that has not been covered in this excellent catalogue. It's a honey. **(F-43)**

"Forging Ahead in Business" is the title of a booklet made available by Alexander Hamilton Institute, Inc. Of particular interest is a chart that shows the subdivisions of each of the major business activities—production, marketing, finance, and accounting. **(F-44)**

A program to help you step up the mechanization of your operations for greater productivity, better products, and lower unit cost is described in a publication released by General Electric Co. Called "Progressive Mechanization," the program is believed to be the first attempt of its kind to present a concise, workable consolidation of the principles of production technique and methodology that have made our nation the leading force in world economy. **(F-45)**

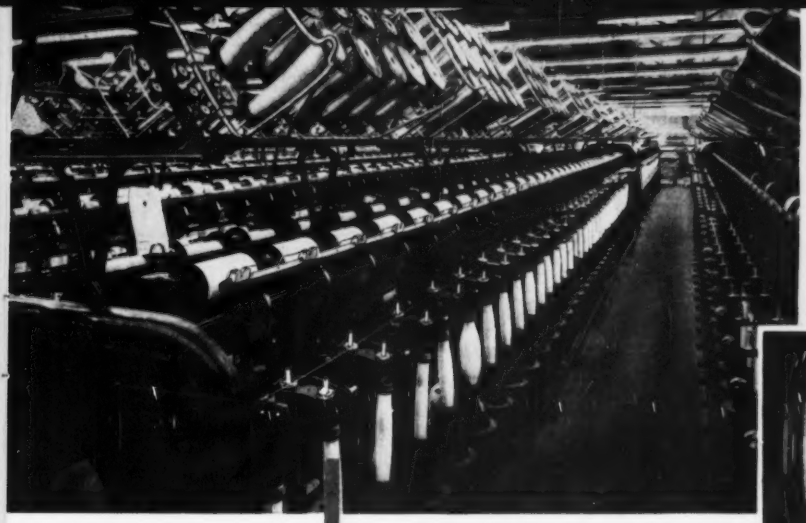
Are your business arteries hardening? Some obvious manifestations of industrial arteriosclerosis that demand your constant attention are outlined in a reprint made available by Kurt Salmon Associates, Inc. Another sheet that the firm offers tells how to select a consultant. **(F-46)**

To assist employers in preparing effective booklets that explain pension and retirement plans to employees, a booklet that outlines the methods used in several leading plants has been prepared by Employee Benefit Plan Review. Theme of the booklet is this: employers are investing a lot of money in pension plans but are doing very little to realize the highest possible return in the form of employee good will and cooperation. **(F-47)**

The flameproofing of textiles is discussed in a special-hazards bulletin prepared by The Association of Casualty and Surety Companies. The bulletin is available through your own stock-casualty-insurance carrier. **(F-48)**

Samples of tricot fabrics are included in a booklet on the knitting industry that has been prepared by American Viscose Corp. The booklet, which tells how the company serves the knitting industry, is also full of general technical information. **(F-49)**

"Your Opportunities in Science" is the title of a booklet that you may be able to use to help alleviate the growing shortage in scientific and engineering manpower. The booklet has been prepared by the National Association of Manufacturers. Perhaps you can have this booklet distributed at your local high school or in some of the young peoples' clubs in your community. **(F-50)**



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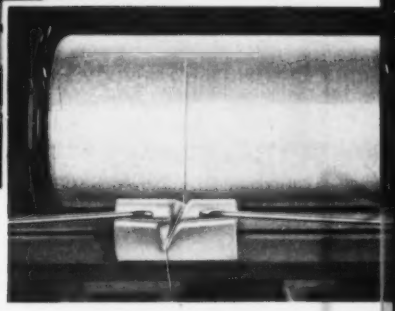
This eliminates the build-up of excess yarn on package ends.



AlSiMag Number GE-26221

ALSIMAG®

presents a *NEW IMPROVED* Winder Redraw and Uptwister Guide

Will fit many type machines but has been designed principally for Universal's Atwood Redraw Model No. 200 and Atwood Utility Uptwister.

PRICES REDUCED, TOO! *A NEW IMPROVED METHOD OF PRODUCING THESE GUIDES PLUS VOLUME DEMAND FOR THEM HAS PERMITTED PRICE REDUCTIONS AS MUCH AS 35%.*

FULL FRAME TESTS ADVISED. As a result of the angled slot, the traverse required is somewhat shorter than for conventional guides. Therefore, the length of traverse must be adjusted for these AlSiMag guides. This is easily and quickly done. Thus we advise tests on a full frame. To make this easy for you we will consign to you, guides for a full frame. They may be returned for full credit at any time within one year. This permits you to give them full tests without cost.

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Globe Dye Works Company dyes Dacron in any shade from black to white with good fastness.

We also dye Dacron Blends.

A TRIAL ORDER WILL CONVINCE YOU

Yarns we process include cotton, rayon, worsted, nylon, linen, blend and novelty yarns.

Globe DYE WORKS CO.

We do package dyeing on tubes, skein and warp dyeing, warp mercerizing and sizing.

4500 WORTH ST., PHILADELPHIA 24, PA.

Useful Accessories For Textile Mills

▶ To request further information on any item please use the card in the Reader-Service dept.; refer to the number at the end of the item concerned.

Coils for 300° F. Service

Protection against damage from continued exposure of electrical coils to temperatures up to 300° F. is now obtainable at low cost with a new process that is used in the manufacture of electrical coils by Douglas-Randall, Inc., 102 High St., Westerly, R. I. This new process, which does not involve the use of silicones, provides protection in the intermediate temperature range, at a cost of only slightly above that of unprotected coils. Thus the manufacturer who needs 300° protection can avoid the considerable cost increases resulting from the use of other processes that necessarily go to 500° F. Both randomwound and interleaved coils, wound on either round or rectangular bobbins, can be furnished with the 300° F. protection. (U-1)

Convertible Tiering Pallet

A new all-steel, welded materials-handling product, the "Dubl-Duty" pallet-stacker conversion kit, has been introduced by Elizabeth Iron Works, Inc., Box 360, Elizabeth, N. J. With the new kit, any standard wood pallet can be changed into a tiering pallet for the safe storage of crushable, fragile, or irregular-shaped merchandise. Each pallet kit contains four tiering attachments, standards, nuts, and bolts. The tiering attachments fit on the ends of the pallet stringers and are secured in place with bolts. Standards come in a variety of deck-storage heights, interchangeable from 24 to 48 in. Attachments are flush with and outside of deck area, leaving the pallet deck surface for storage. Self-aligning bearing plates on standards and tiering attachments prevent shifting and assure safe tiering. Key locks, in the bottoms of standards and in tiering units, secure the standards firmly in correct stacking position. Unit capacity of the kit is 3,000 lb. When not in use, the pallets, with standards removed, stack evenly for compact storage. (U-2)

Electronic Trouble Spotter

An electronic "third ear" that is a quick, low-cost means for accurately locating and analyzing source of noises and vibrations in mechanical devices while they are in operation has been developed by Erwood, Inc., 1770 Berteau St., Chicago 13, Ill. The device is called the "Electric-Probe." Incorporating a sensi-

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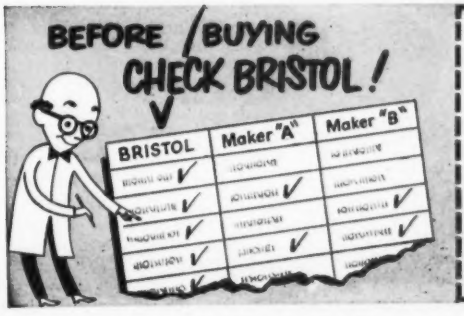

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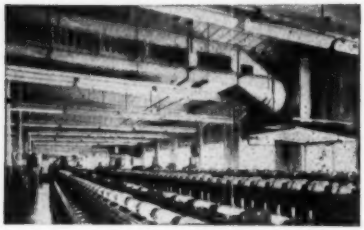

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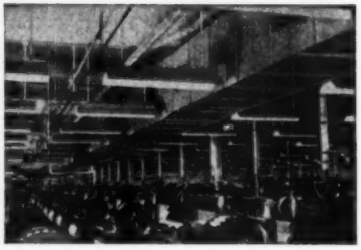

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PARKS Certified Climate

Useful Accessories (Continued)

tive vibration pick-up probe and 3-stage amplifier, the instrument is a thousand times more perceptive than the human ear but is unaffected by airborne noises because it is sensitive only to vibrations at the point of contact. Speaker and headphones provide audible comparison of vibration sounds within a range of 60 decibels. A calibrated meter provides visual indication. The instrument can be used for locating motor troubles, leaks and stoppages in fluid piping systems, and origins of structural vibrations; for analyzing airborne sounds; and for inspecting parts and sub-assemblies. (U-3)

Fire Extinguisher Without Static

A built-in device that grounds static electricity and eliminates shock to operators of larger carbon-dioxide fire extinguishers having hose connections is announced by American-LaFrance-Foamite Corp., 903 Erie St., Elmira, N. Y. It is called the Alfco "Anti-Statik" horn. Discharge from a carbon-dioxide extinguisher is largely carbon-dioxide snow that issues from the nozzle at a high velocity, creating friction against the inside of the horn. The horn serves to eliminate the building up of a static potential under all operating conditions. A pair of copper conductor strips, extending a considerable distance along the inside surface of the horn, are molded in place and electrically bonded through the nozzle and the metal braid of the hose to the carbon-dioxide cylinders. The conductor strips serve to carry away the static charge as rapidly as it is produced. Without these anti-static strips, a plastic horn acting as a condenser can build up a high static potential before discharge results. (U-4)

For Termite Control

A new packaged product known as "Arab U-Do-It" termite control, which permits a mill to do its own "termite-proofing" effectively and at a great saving, has recently been introduced by Federal Chemical Co., Inc., 2701 Winthrop St., Indianapolis, Ind. The new product is designed for modern soil treatment around the foundation of a mill and under plant property. A liquid concentrate with a chlordane base, the product is mixed with water—one gallon making 100 gal. of ready-to-use termite killer. U-Do-It is odorless, non-flammable, and harmless to plant life. Advantages of U-Do-It are ease and economy of application, no special tools or training required, and ease of regular maintenance men in handling the job easily by following simple instructions. The concentrate retails at $29.95 per gal. (U-5)

Heavier-Hp. Transmissions

Three new models of multi-speed power units for heavier horsepower applications have been developed by Turner Machinery Co., 3479 Terrace St., Kansas City, Mo. Models 2004, 3004, and 5004 transmissions are the result of over two years of design, engineering, and test operation. The models are available in ratings up to 60 hp., thus making them adaptable to

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Amazing, New
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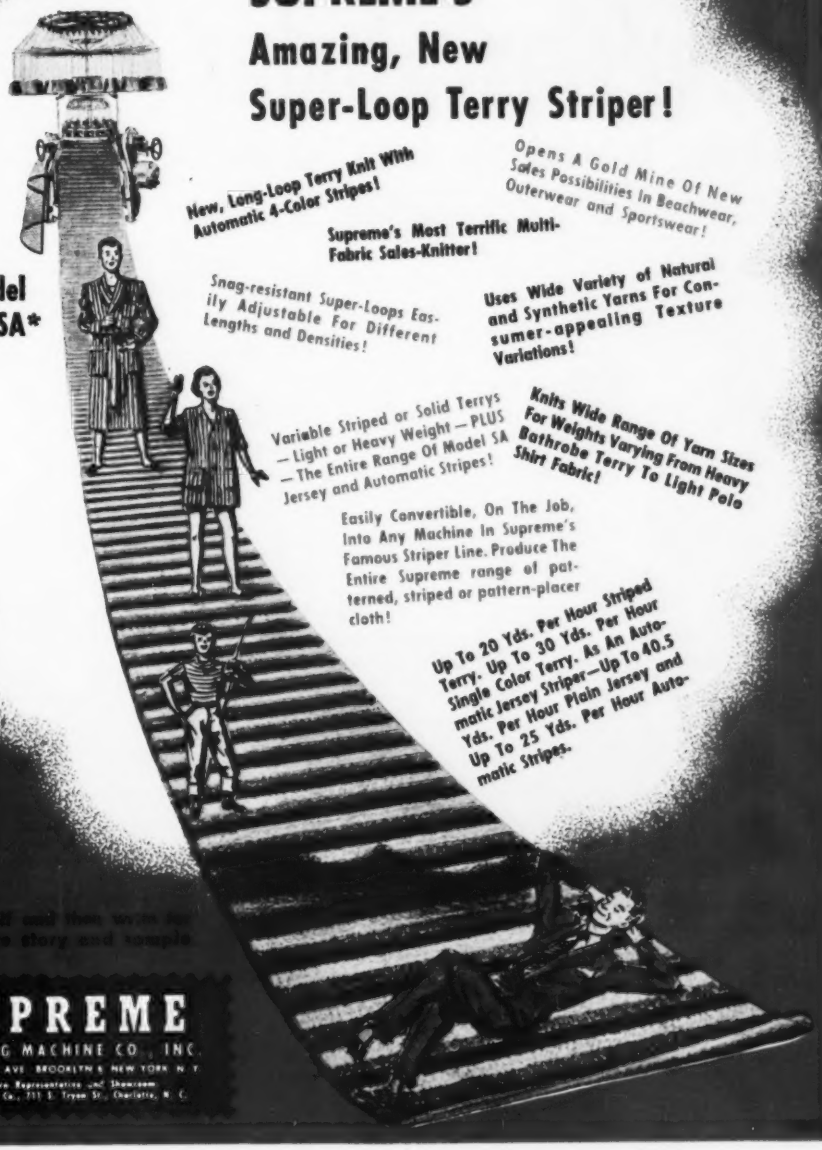

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New, Long-Loop Terry Knit With Automatic 4-Color Stripes!

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Supreme's Most Terrific Multi-Fabric Sales-Knitter!

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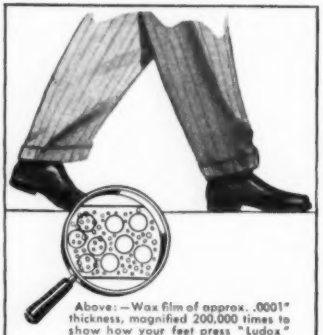

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Fullergript, Wet and Dry Mops, Brooms, Floor and Special Brushes.

Useful Accessories (Continued)

a wide range of heavier applications. The units are ideal for use wherever it is necessary to vary the turning speed of electrically driven equipment or machinery. Many installations are in connection with internal-combustion engines where it is advantageous to run the engine at a constant speed and vary the output speeds. Two different types of mounting brackets are available. (U-6)

Lift-Truck Backrest

Safe handling of unusually high multi-unit loads is simplified by the Towmotor extension backrest, a standard accessory engineered and put on the market by Towmotor Corp., 1226 East 152nd St., Cleveland, Ohio. Extending from the vertical carriage frame of the truck, the extension backrest facilitates handling stacks of case goods, bags, bales, or other loads that normally extend above the top of the carriage. The backrest can be attached or removed in a few seconds. (U-7)

New Bonding Adhesive

A new adhesive—a yellow film 6 mils thick—for industrial, splicing, laminating, and holding jobs has been announced by Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul, Minn. Tradenamed "Scotch-Weld" Bonding Film No. 588, the new material is a heat-activated thermosetting film made from a combination of plastics. Under heat it changes from a solid to a heavy liquid that flows and bonds surfaces together. The film is designed to bond many types of materials. Application consists of (1) cleaning the surfaces to be bonded, (2) stripping the film from its protective paper liner, (3) "sandwiching" it between the work pieces, and (4) activating it under pressure in heated presses or curing ovens. Physical properties listed for the film include "excellent" resistance to solvents, shear stress, and shock, and "good" resistance to heat and flexing. (U-8)

Oil-Base Masonry Paint

"Hydrocide Colorcoat," a new paint that primes, seals, and finishes highly porous masonry surfaces in just one application, has been announced by L. Sonneborn Sons, Inc., 80 Eighth Ave., New York, N. Y. The product's specially formulated oil-base paint and aggregate fills in cracks and chips on old buildings or prevents them in new buildings. Easy to use, it flows on like very soft putty. It lasts a long time and stands roughest abuse and weathering. It is applied by brush or spray. Six lime-proof colors are available. One coat is said to do the job of three. (U-9)

Piston-Operated Steam Trap

The Type SP, a piston-operated steam trap for applications where exceptionally large capacities are required, has been developed by Velan Engineering Co., 1 Exchange Place, Jersey City, N. J. The new trap, comparatively small and three to ten times lighter than other designs of similar piston-operated traps, has a

textile machine designers:

this informative engineering handbook can help you!

If you design controls, actuating mechanisms, hoists, counterweight suspensions, or any type of equipment where you must transmit pull or lift, this informative, free engineering handbook on tension linkages will help you.

It covers typical examples of tension linkage applications . . . helpful step-by-step data on equipment selection and examples to guide you in making your selections. There are tables of dimensional data and other important facts you'll find useful in your work.

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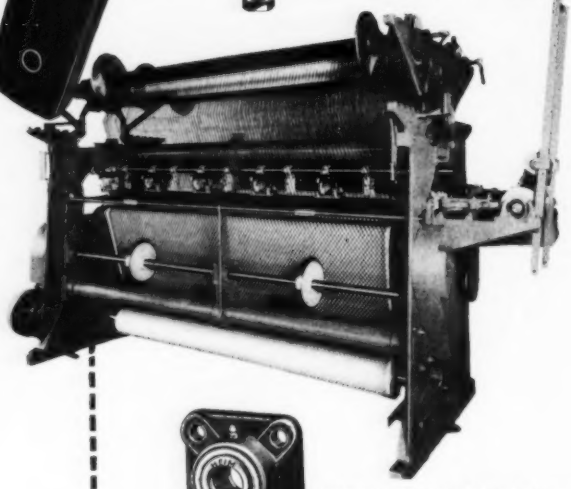

ROLLER BEARING FLANGED UNITS . . . Also made in self-aligning ball bearing types.

BALL BEARING PILLOW BLOCK . . . Also made in roller bearing types.

Bearings and Sweepsticks for the Textile Industry.

THE HEIM COMPANY

FAIRFIELD, CONN.

Useful Accessories (Continued)

2-in. orifice that combines the company's 4-operation principle: (1) airvent, (2) strainer, (3) condensate discharge, and (4) check valve. The air-discharge capacity is larger than that of other designs. All moving parts are made from stainless steel, including the piston plunger, piston liner, and spring. The strainer is made from heavy-duty phosphor screen for pressures up to 250 psi. and from stainless steel for higher pressures. The trap can be supplied with screwed connections 1¼, 2, 2½, 3 in., or with flanged connections 1½ to 5 in. Its comparatively small size and straightforward design make the trap exceptionally competitive in price and quality. (U-10)

Quick-Acting Hose Reel

A new, continuous-flow hose reel for fighting fires instantly and keeping water damage to a minimum has been developed by Wirt & Knox Mfg. Co., Sedgley Ave., Philadelphia, Pa. With the new reel, fire-fighting time is saved because water pressure is available at the hose nozzle even when the hose is coiled on the reel. A swivel-joint connection in the pipe line permits application of a full stream of water on the fire while the hose is being unreeled. This feature eliminates the time required to turn on the valve after the hose is run out. Kinks and tangles so often encountered when dry hoses are removed from reels or hangers are eliminated, together with the time required to straighten them. The rounded surfaces of the continuous-flow reel prevent cutting or other damage to the hose. A universal mounting permits easy installation on walls, columns, ceilings, or floors. A complete range of sizes is available. (U-11)

Relief From Static Electricity

"Statikil," a specially prepared emulsion for the treatment of surfaces to change the existing surface charges of static electricity and to prevent more of a like charge from being built up, is now being offered in self-spraying containers by Statikil Co., 1220 W. 6th St., Cleveland 13, Ohio. The agent is harmless to hands, materials, and machines. By the pushing of a button on the top of the container, the emulsion can be applied to stationary or moving surfaces. (U-12)

Right-Angle Worm-Gear Motor

A new line of low-speed right-angle worm-gear motors has been placed in production by U. S. Electrical Motors, Inc., Box 2058, Los Angeles, Calif. Known as Type-GW "Syncrogear," the design incorporates a cantilever design to protect gear alignment. Mounting stresses are absorbed by a rugged single-unit pyramidal base with "spread-eagle" feet. The gear and motor housing are free from distortion. The design embodies splash lubrication, a hardened and ground worm, a leakproof oil seal, and asbestos-protected windings. The unit has self-locking brake action. The parabolic contour of the motor housing gives the unit a pleasing

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Fielden INSTRUMENTS AND CONTROLS

FIELDEN MOISTURE CONTROLS FOR SLASHERS

—PREVENT SET MARKS AND EXCESSIVE LOOM SHEDDING

Excessive moisture in sized warps makes the yarn more ductile during weaving. Increased ductility robs warp ends of their ability to recover from elongation induced by strain caused when the harness is raised during loom stops. Set marks are the inevitable result.

Overdrying, on the other hand, leaves the size and surface fibres brittle. More force is required at the split rods to separate ends and loss of overbaked size coating and surface fibres results. Further shedding of size and fibres occur on contact with drop wires, heddles, and reeds at the loom, since baked warp ends have lost their ability to return to their original shape.

Correct these defects by installing on your slashers the Fielden Drimeter with Automatic Moisture Control. It will bring the warps off your slashers with the exact moisture content required for better weaving.

The operator simply sets the instrument for the moisture content desired. The Drimeter and automatic control regulates the slasher to run at the speed that will maintain the desired moisture content within 1%. Because the Fielden Drimeter measures moisture by a change in electrical capacitance it is unaffected by pH and is accurate on all warps, including acetates and warp dyed yarn.

SAVES on AIR CONDITIONING and SIZING, TOO

Many mills run 15 to 20% higher humidities in their loom sheds than are required, trying to compensate for the excessive drying of warps during sizing.

When warps contain the proper moisture content as they come off the slasher, the relative humidity in the weave shed can be reduced by 15 to 20%! In addition, by not overdrying warps, slasher speed can be increased by as much as 50%.

For further details about the economy and quality effects of Fielden Drimeter and Automatic Moisture Controls, write for illustrated description literature and list of users.

Fielden **INSTRUMENT CORPORATION**
2920 NORTH 4TH STREET
PHILADELPHIA 33, PA.

a subsidiary of:
ROBERTSHAW-FULTON CONTROLS CO.

Useful Accessories (Continued)

appearance. The new motor is built in speed ranges from 20 to 155 rpm., and gear ratios are up to 58 to 1. Horsepower ranges from ¼ to 3, both 3-phase and single phase. The GW Syncrogear can be installed horizontally or upright and can be provided with a footless flange mounting. Other modifications provide variable speed, splashproof design, and total enclosure. (U-13)

Rigid-Pipe Rack Pallet

A new rigid-pipe rack pallet that is easier to stack, won't sway, and costs about one-third the price of ordinary rack pallets has been brought out by National Pallet Corp., Oliver Bldg., Pittsburgh, Pa. It is said to be ideal for storage, handling, and shipping of many products, including textiles, and other products that require maximum rack-pallet rigidity. Complete rigidity is obtained without the use of cross braces, so there is more usable space and greater accessibility. In addition, the pallet can be used as a regular handling or shipping pallet when not in rack service. Top and base are purchased separately. Used or reject pipe can be purchased locally at great savings. (U-14)

Weatherproof Switch

A new, compact, weather- and oil-proof push-button electric switch has been announced by Micro Switch, Freeport, Ill., a division of Minneapolis-Honeywell Regulator Co., 4509 Wayne Ave., Philadelphia, Pa. Weighing only an ounce, the double-pole double-throw assembly is so small that it will fit inside a walnut shell. The panel-mounted push button is sealed against the entrance of oil, water, and dirt by synthetic sponge rubber. The small movement required to operate the sub-miniature snap-acting switches is provided by the resilience of the seal. No sliding joints are required. Underwriters' Laboratories list both single- and double-pole switch assemblies for 5 amp. 250-v. a.c., and either type will control 30 d.c. inductive loads of 2 amp. at sea level and 1½ amp. at 50,000-ft. elevation. Installation and wiring of the new switch is accomplished easily by snap removal and replacement of switch elements in mounting bracket. (U-15)

To Handle Bulk Materials

All-steel "Master Bins" have been developed by and are now used extensively at Lewis-Shepard Products, 117 Walnut St., Watertown, Mass., for stacking, carting, and dumping steel scrap and waste material. The handling of virtually any bulk material is said to be improved with these tiering bins with trap-door bottoms. They are made to nestle one on top of the other for tiering. Electric fork-truck forks enter the bins easily. At any desired height, a hook on top of the mast is engaged. Then as forks are lowered over the chosen dumping spot, the bottom of the box opens while a hook holds the rest of the box in position. Contents flow out quickly, and spotting of the load is accurate. The bins can be made to size specifications. (U-16)

Rayon Reports

Prepared Monthly by American Viscose Corporation, New York, N. Y. August, 1952

NEW MODEL OF EUROPEAN GEAR-DRIVEN SPINNING MACHINE INSTALLED BY AVISCO

Experimental quantities of yarn with commercial qualities are being produced by a "Perfect" Spinning Machine with 320 gear-driven spindles recently installed by Avisco in its Textile Research Department at Marcus Hook, Pa. This type of machine has been in service since before the last war in several countries in Europe, but it is relatively new in this country.

The machine is designed to handle 100 per cent rayon, rayon and natural fiber blends, or 100 per cent worsted yarns in lengths ranging from 1½ to 9 inches. The drafting element is composed of a broad apron with carrier rolls, and the center section is so designed that it is easily adjusted to handle various lengths of staple. The broad apron covers six or more spinning positions according to the gauge of the frame. This arrangement facilitates cleaning and allows the spinning of various staple lengths to a quality yarn.

Avisco's Textile Research Department plans to run the "Perfect" machine in comparison with drafting units supplied by American manufacturers and compare uniformity of twist from bobbin to bobbin with conventional methods. All interested mill men are invited to watch demonstrations of this and other frames at Marcus Hook.

RAYON 20 YEARS AGO

ROME, August 1932 – 2,000,000 rubles are being spent in Italy for rayon machinery by the Russian government.

NEW YORK, August 1932 – The popularity of open-mesh dresses has created a demand for rayon slips in deep costume colors.

NEW YORK, August 1932 – Perfumed rayon hosiery is being offered by manufacturers.

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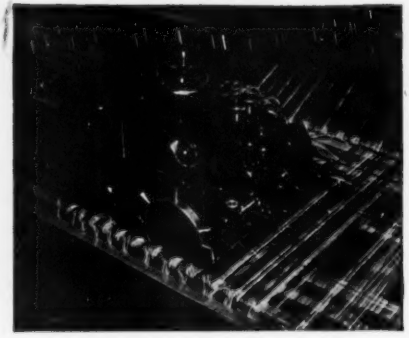

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It is Completely UNIVERSAL.

1. Same machine ties warps with or without lease and unleased to leased warps or vice versa.
2. At or away from the loom.
3. In up to 108" widths in one operation.
4. Ties nylon, rayon, wool, worsted, cotton, silk or combination yarns.
5. Controls the lease.
6. Ties more ends per minute.
7. With easier handling.
8. At lower costs.

Let us demonstrate the TITAN WARP TYER in your own plant on your own warps. Several of the many mills using TITAN mechanical tying-in equipment have had this demonstration and are now satisfied users.

Visit our Exhibit — Booth No. 503 at the 17th Southern Textile Exposition, Greenville, South Carolina, October 6 thru 11, 1952.

Write for references and literature.

Southern Representative:
Ira L. Griffin & Son, 1429 Bryant Street, Charlotte 1, N. C.

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Books of Interest

Complete Reference On Textile Printing

TEXTILE PRINTING MATERIALS, METHODS AND FORMULAE by Fred F. Jacobs; Chartwell House, Inc., 280 Madison Ave., New York 16, N. Y.; 224 pages, illustrated, $5.

This book should prove to be a good "how-to" reference for the busy textile printer, chemist, colorist, or engineer. Not only are the methods of evaluating dyestuffs, chemicals, and thickeners given with an eye to the end use of the fabrics, but also many suggestions for improving methods and formulations are included. The author's solid background in the field adds weight to his survey.

Instructions, for example, are given for the pre-treatment of fabrics before printing; for the preparation of chemicals, thickeners, and print pastes; and for the best carrying out of printing and finishing. Formula quantities are given for both laboratory and plant use. And especially interesting in this day of blends are the sections devoted to fiber identification and the determination of dyestuffs on fabrics.

Heat Problems Solved by Graphs

INDUSTRIAL HEAT TRANSFER by F. W. Hutchinson; The Industrial Press, 148 Lafayette St., New York 13, N. Y.; cloth, 326 pages, $6.

The solution of problems on heat transfer between industrial fluids will not concern most mill men; yet the engineer in a textile-mill job who has to solve complex heat-transfer formulas as well as determine fluid viscosity, specific heat, and density should be very glad to have this book near at hand.

The meat of the book is 128 working charts from which a direct solution of heat-transfer problems can be obtained for 70 industrial fluids, ranging from 100% acetic acid all the way through to water. As a further aid, the equation for each graph is given, its limitations, and its extension. And an actual example is also given, with its solution shown on the graph.

Basic Course On Top Making

TOP MAKING by Michael J. Koroskys; Lowell Textile Institute, Lowell, Mass.; cloth, 246 pages.

Practical information on the subject of top making has been hard to find in recent

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LEVEL DYEING!
ECONOMICAL!
CHLORANTINE* FAST

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. . . FOR ALL "QUALITY" VISCOSE AND COTTON YARNS AND FABRICS where light and wash fastness requirements are of the highest.

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with urea formaldehyde finishes . . . little or no bleeding in the resin bath . . . the final shade practically identical with original dyed shade . . . light fastness is unaffected.

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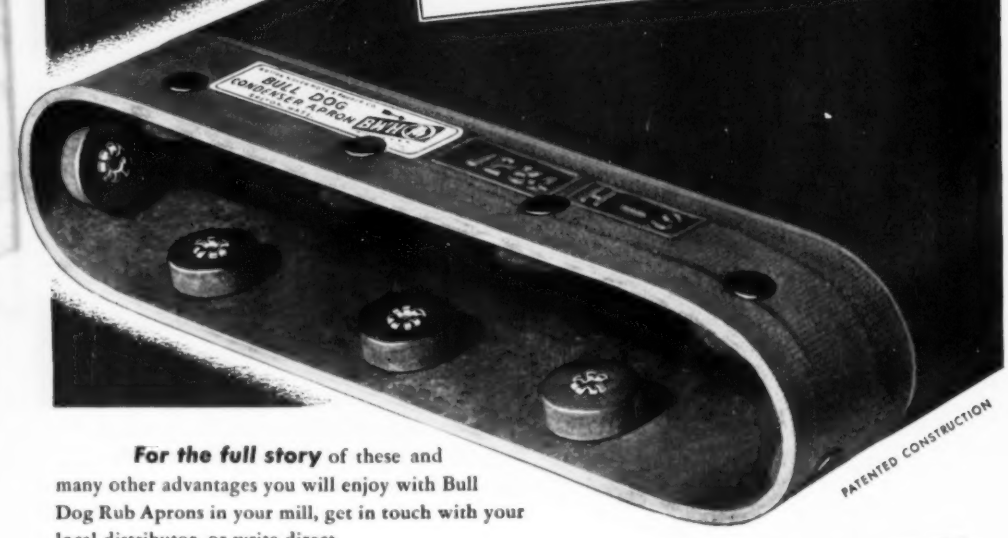

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BWH
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textile literature, so this fact-packed outline of the author's lectures and laboratory work on the subject are most welcome at this time. Processes covered include worsted carding, backwashing, gilling, Noble combing, wool sorting, scouring, carbonizing, dusting, burr picking, wool buying, and top analysis (including stapling, classification, testing, and marketing). Latest types of equipment are described in detail. Page-sized cross-sectional drawings of equipment are given, with roll diameters, distances, and directional arrows included. Hypothetical blend setups are followed through to show, for example, how to use a Pacific Converter or any of the other equipment usually available.

It would be hard to conceive of a more useful manual for top manufacturers and worsted mills. Two pages of common wool definitions and eight pages of wool terms in glossary form complete the coverage of the subject.

Fabric Samples For Fabric Designing

101 FABRICS by I. J. Pizzuto and P. L. D'Alessandro; Textile Press, 140 Cedar St., New York 6, N. Y.; cloth, loose-leaf, 160 pages, $15.

This informative and useful book will appeal to fabric designers, technologists, fabric buyers and sellers, and mills anxious to produce new fabric constructions. The more than a hundred 3x3-in. swatches attached to pages containing pertinent manufacturing data allow one to handle as well as visualize a potential construction.

Information given with each swatch includes fiber content, gray and finished width, finished weight in yards per pound and ounces per square yard, both gray and finished warp and filling counts per inch, yarn numbers used, twists, type of weave, warp and filling tensile strength, and comments on special handling, dyes, and finishes. Information on each sample was obtained from standard laboratory tests.

A noteworthy feature of the book is a copious alphabetical listing of pertinent textile terms. This glossary is closely integrated with the 101 samples and accompanying information, with references to particular samples in the book for consideration along with the verbal descriptions in the glossary.

British Year Book Has New Features

YEAR BOOK OF THE TEXTILE INSTITUTE, 1951-52; The Textile Institute, 10 Blackfriars St., Manchester 3, England; paper, 338 pages, 15 shillings ($2.10).

This fourth year book of the Textile Institute includes several useful new features in addition to those that in previous years have made the publication a valuable source of reference.

The new features include a list of more than 150 films on textile subjects and the English sources from which these may be obtained; a catalogue of more than 2,000 publications in the Institute's library; a description of methods of calculating standard deviations, and members' addresses.

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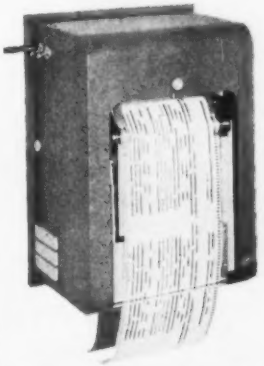

This is the Centralograph showing the continous record-chart in the office. It records the operation of one or more machines simultaneously. Each time a machine stops, the "WHY" number dialed by the operator appears on the chart.

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We'll be glad to discuss this further with you, at your convenience. Let us show you how the Centralograph will also help you in time and cost studies, wage incentives and other factors.

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Questions AND Answers

Use a Twill Weave For Wool-Cotton Felt

Technical Editor:

Could you give us a diagram for the pattern chain on a Knowles-head woolen loom to weave a fabric that is to be run on a napper and finished as one-sided felt? What number is the cotton warp usually used in a good felt fabric? The filling is wool. (9557)

The weave commonly used in this cotton-wool felt is a 45° twill with a one-down-five-up filling-face weave. The weave is complete on six ends and six picks.

Build the pattern chain 24 bars long to repeat the six-pick pattern four times. A six-bar chain is hard to put on, and a 12-bar chain may have a tendency to hang when the weaver puts the head motion in reverse to take out a broken pick. An 18-bar chain will not repeat on a 2x2 basket for the selvage. A chain roll should also be used to keep the chain from hanging. In building the chain, use five risers on the opposite side to balance the chain.

This weave requires only six harnesses, but it would be advisable to have a basket-weave selvage that will require two additional harnesses. A basket weave will help to prevent the selvage from rolling in the finishing operations. In the selvages use only half the number of ends per inch used in the body so that the selvage will have a chance to spread out.

Use two shuttles and put the box chain on so that the selvage harnesses change when the shuttle is in the magazine or drive end of the loom.

The warp ends are usually 16/2 cotton yarns.

A Basket Weave in Worsteds Can Stop Rolled Selvages

Technical Editor:

We are having a lot of trouble with rolled selvages in our cloths. We have to iron the selvages to prevent them from being cut in the shearing machine. How can we keep our selvages flat? (9556)

Rolled selvages are usually caused by the selvages being too tight or too loose. One of the best remedies is to

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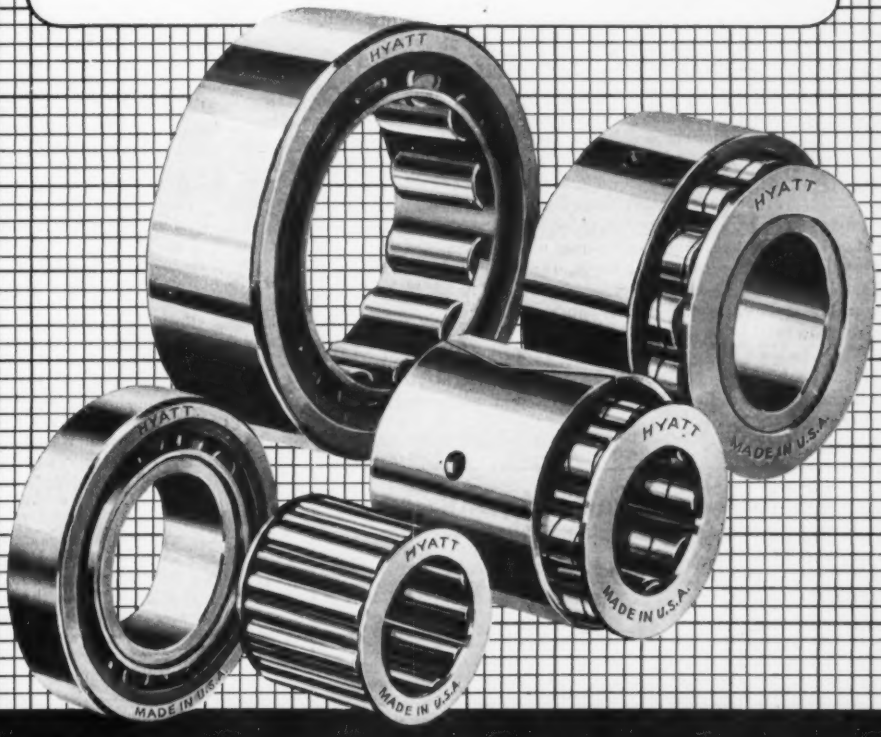

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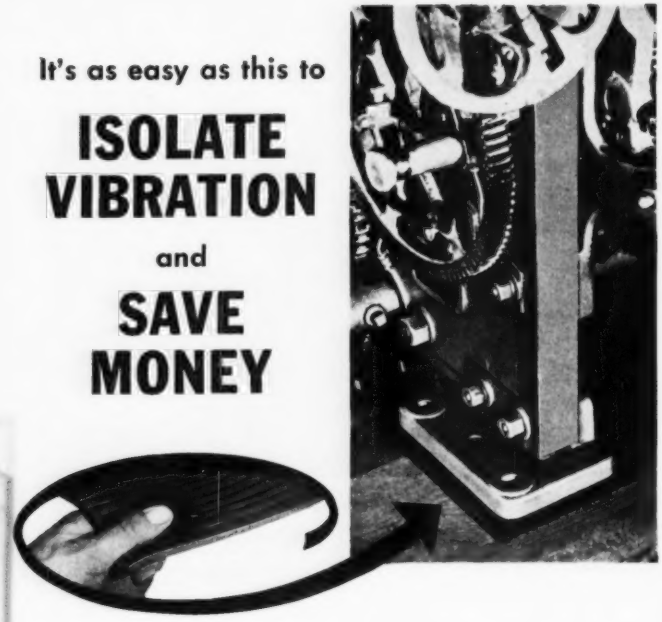

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Questions and Answers

(Continued)

use a 2x2 basket weave in the selvage. This type of selvage is used by most woolen and worsted manufacturers and will usually lie flat in finishing. Spreading the selvage out may also help.

Some types of loosely woven woolens require the selvage to be reeded fewer ends per dent than the warp body. Weavers may also cause trouble by running two or more ends in a heddle and making a ropy selvage.

Most modern mills have been able to eliminate tacking; but if the operation is used, the cloth should be tacked as close as possible with a ¾-in. stitch.

The best method is to use two additional harnesses just for the selvages. It will be necessary to arrange the box and pattern chains so that the selvage harnesses will change while the shuttle is in the magazine or dead side; otherwise the selvage will not weave in.

How To Eliminate Oil From Acetate Fabrics

Technical Editor:

How can I eliminate grease and oil lines in the weaving of acetate and viscose fibers? Should these defects be eliminated in finishing? (9559)

Oil and grease should be eliminated from acetate and viscose fabrics while the cloth is woven on the loom.

Rules that will result in clean fabrics are:

1. Keep the loom clean. Each loom should be cleaned every time the warp is out. Looms can be cleaned more easily if looms are empty, but certain loom parts can be cleaned at cut marks and while warps are being tied with a tying-in machine. For example, lay ends, shuttle boxes, harnesses, drop wires, and reeds can be cleaned in this manner.

Reeds, drop wires, and harnesses should be thoroughly cleaned before the warps are drawn in.

A program for cleaning drop wires and reeds at warp-cut marks will help eliminate dirty lines of grease and oil from finished cloth. An antirust solvent should be used as a cleaner.

2. Each employee should keep his hands free from dirt. The battery hand must keep the filling clean, the loomfixer should not handle the yarns, and the weaver should wash his hands before drawing in warp ends. French chalk is often helpful in preventing warp stains since it removes perspiration from a weaver's hands.

Every effort should be made to keep the yarns clean in the preparation department. Rings, travelers, guides, and rolls should be cleaned periodically. The size box, guide rolls, and other

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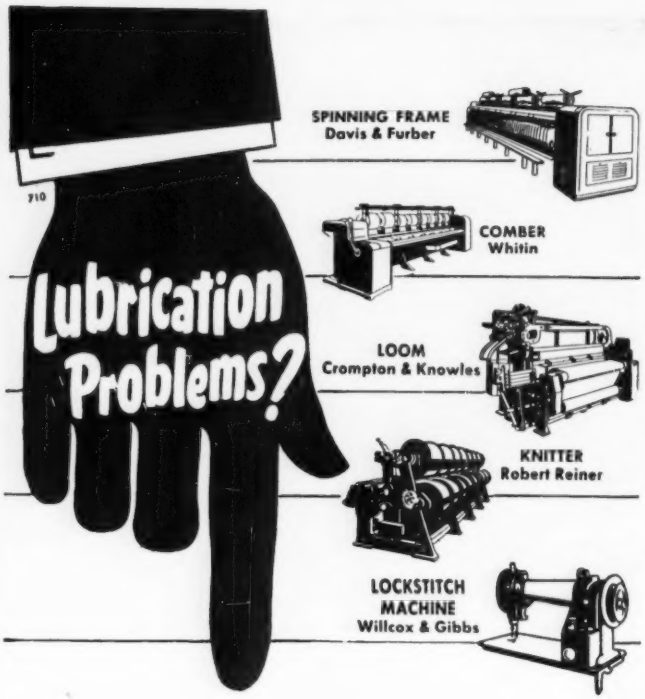

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Questions and Answers

(Continued)

slasher parts that touch the yarn should be kept clean.

If oil and grease do get on the cloth, the finisher can often remove the stains if the woven cloth is constructed sufficiently strong to permit a long handling period in the boil-off.

Several emulsions that contain solvents specifically designed to remove mill oil are available. Pine oil in an emulsified form will usually remove most oil stains from cloth. Other emulsions that contain gasoline or kerosene are sometimes used.

Solvents such as tetralin, hexalin, and chlorinated hydrocarbons that contain trichlor ethylene and mixtures of trichlor ethylene in an emulsion form will often remove oils and greases from gray goods.

A finisher doesn't like to use these materials because they are expensive and because they interfere with his routine finishing methods.

The finisher has to do a lot of investigational work in the laboratory to remove oils. Often the solvent that will remove oils from the cloth of one mill will not remove other brands of oil from the cloth of a second mill.

Oils and greases can be removed from cloth, but it is cheaper to keep the cloth clean.

Butted Needles Are Used On Tricot Machines

Technical Editor:

Why aren't the needle bars of tricot knitting machines cut with trickways and butt holes to use butted needles as on full-fashioned hosiery machines? (9564)

More and more mills are converting to butted needles on tricot knitting machines, although some mills are still hesitant about making the change.

Mills that have made the conversion claim that they are able to hold the pitch line of the needle much longer. They also feel that needle replacements can be made with less expense.

No satisfactory way has been found to mount the individual guides; therefore, loaded guides must be used.

Use a Direct-Type Dye To Find Misdraws in a Warp

Technical Editor:

What dye solution can I use to find mixed ends in a viscose-acetate cloth? (9561)

Any direct-type dye will do the job. The dye is made up of about a 10% solution.

A direct-type dye will color viscose and leave acetate white or slightly stained.

For more information, write direct or use Reader Service post card.

Make Better LAUNDRY NET...
increase production, too, with a
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Laundries like the long-lasting qualities of nylon net made on the Kidde Knitter. Each end is anchored to make the net runproof... to prevent snagging holes from spreading. Better penetration of washing solutions is possible because the Kidde Knitter can produce net with wider mesh.

In addition, this *better laundry net*, as well as many other fabrics can be produced at higher speeds. Rugged construction, a new motion on the needle bar and an improved drum drive make these higher speeds possible.

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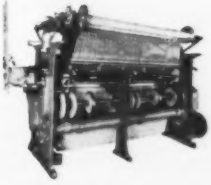

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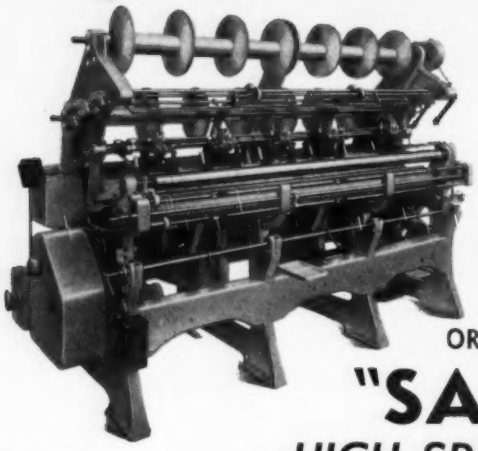

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Attitude Toward Research

(*Continued from page 121*)

uted among the fibers. Yet the most striking advances in textile physics and in the prediction of yarn performance in recent years has come by imagining yarns to be ideal engineering structures, e.g., solid round, homegeneous, without any variability along the length or across the cross-sectional area. Then, by measuring fiber properties and calculating how a yarn should perform, the difference between theoretical and actual performance has provided the key to discriminating among the many possible causes of deviation and rationalizing these into mathematical expressions. Knowing from empirical experience some of the properties of fibers and yarns, such as crimp and twist, the effect of these variables has been gradually determined.

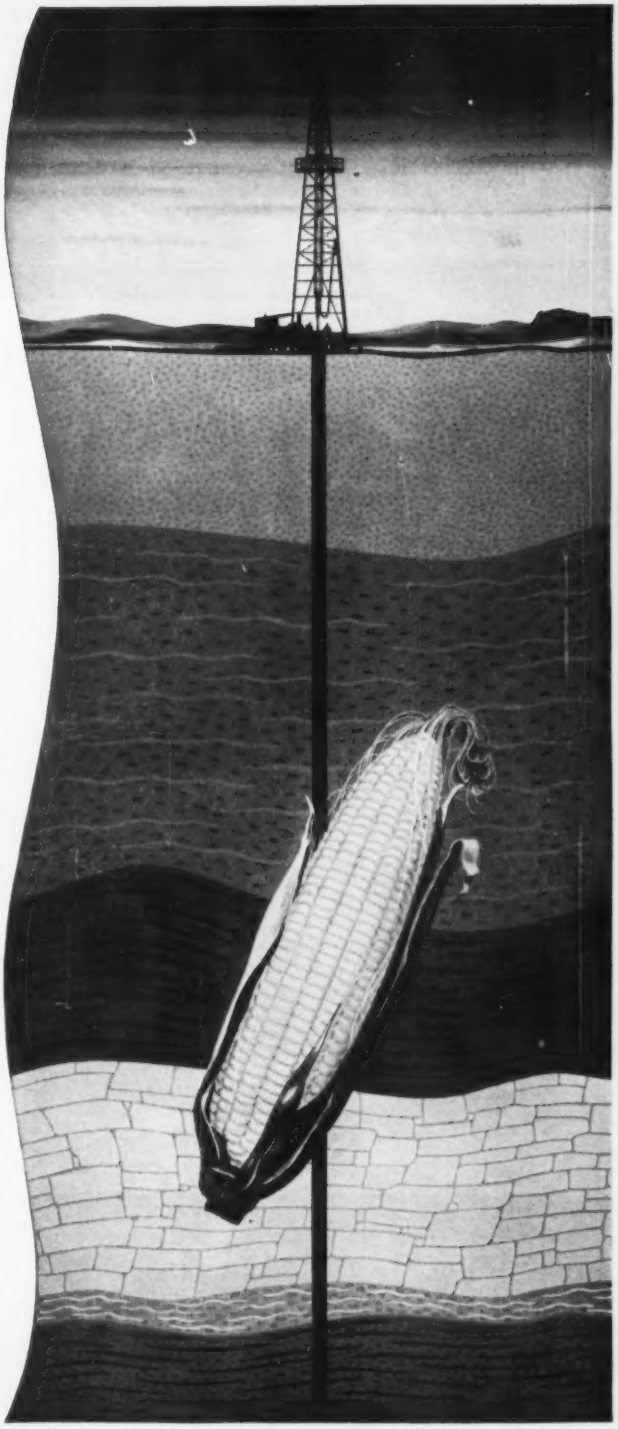
Third—Tolerant:

Research is the product of human beings, working with and among other human beings. For all the striking advances in science, we still have far, far to go before we can be assured in advance that in setting up any attack upon a problem we have chosen proper methods for solution. Research progresses by small steps, frequently very slowly. The time of solution and the scope of the work can rarely, if ever, be guaranteed. Many of the small steps and much of the time consumed are the result of added wisdom stemming from experimental failure.

There is a danger in these times to think of the "research method" and "science" as being a human and infallible, and thus, when an experiment fails, to question the competence of the scientist. This attitude may be most unfair, and our tendency to take such a stand is usually the result of our total ignorance. So it is that an educated man must realize that research methods are fruitful as much because they profit from failure as because they solve a practical problem. The most intelligent, effective expenditure of research funds depends upon a tolerant understanding of the limitations of what we know and hence what we can do.

Those of us who have labored diligently in the field of research realize the problems that rise when the results of theoretical determinations are first explored at a practical level. Seldom do we meet with success on the first trial. More than likely, we apparently fail on several trials. Such failures do not necessarily connote a lack of soundness of work done at the fundamental level, but rather point to the need of additional research at the

What's corn doing "deep in the heart of Texas"?



Research discovered that drilling for oil could be expedited by the use of a binding agent made of a product of corn. This firmed up the side walls . . . also aided in the early flow of sludge. "Black gold" speeded by yellow corn! This is but one of the numerous examples of how continuous basic research in corn helps American industry . . . helps you.

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applied level. Here, the attributes of tolerance are paramount to achieving success. We must be willing and ready to sift the wheat from the chaff. We must determine which lines of attack upon the newly uncovered applied problems will be most fruitful. We must, if need be, stand ready to revise our theoretical conclusions in the light of newly discovered facts that become evident in the process of application.

Such action must be taken forcefully, but not critically, for the wise man is he who recognizes the limitations of his fellow man as he should recognize his own.

Fourth—Humble:

Science makes no policy–people make policy. Science may tell us how to do something–science cannot tell us when or whether to do something. The plight of the world today and the shadow of the atomic bomb bear grim witness to these facts.

No matter what your other attitudes toward science may be, do not demand of science that it relieve you of the responsibility for action. Science has been so productive and the authority of science has come to be so persuasive that society has come to place an unfortunate faith in the ability of science.

Humility is to be regarded more highly than authority in all fields of endeavor, and research is no exception.

Compressed-Air Systems

(*Continued from page 131*)

system before trouble is reported. Air seepage from poor fittings and broken pipes is difficult to locate because of the noise in a mill. It is, therefore, a good practice to make careful inspections on week ends when the machinery is stopped off.

Air tools, unions, drains, and lead-offs are the main sources of leaking air and are special points for examination. Special reports should be made on all water traps connected to waste lines. A defective trap can lose an untold amount of air without being noticed, since the air escapes into the drain line instead of into the air.

Cut-off valves should be provided on all pipes leading to machines, particularly if the machines are idle part of the time.

Air-operated equipment—such as portable tools, machines, and air jacks —that requires lubrication should be taken care of by air-line lubricators placed in the feeder line ahead of the tools. These lubricators should be

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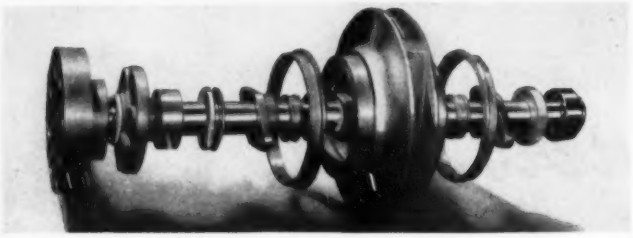
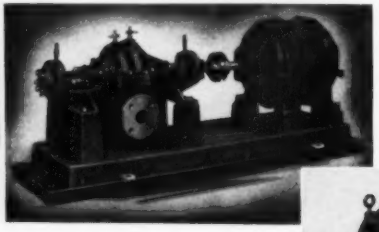
"Buffalo" Tips on Better Pumping

THE IMPORTANCE OF GOOD IMPELLER CONSTRUCTION



The impeller, being the part of the pump that moves the liquid, is naturally subjected to the most punishment in the form of shock, abrasion or corrosion, depending on the hydraulic conditions.

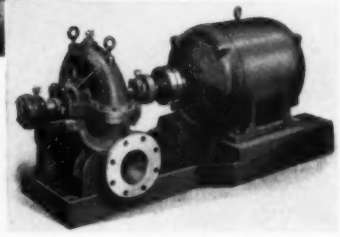
Above is the rotor and shaft assembly of a "Buffalo" Type "SL" Double Suction Pump for clear water service. The shaft is oversize. It is machined of high grade steel, bronze covered, or solid monel metal or other alloy. The bronze impeller is mounted on an enlargement of diameter at the center of the shaft and secured by feather key and lock nuts. The impeller is hydraulically balanced—always receiving water from opposite sides in equal volume and pressure. The entire assembly is also in perfect dynamic balance for vibrationless performance. Such an impeller is not only highly efficient in its liquid handling, it is built to stand continual service. Another example of heavy-duty, high-efficiency construction is the popular "RR" Pump shown at left. Available in 2 and 4 stage models for pressures up to 500 lbs., it is widely used for boiler feed and other clear water service.



"Buffalo" Type "RR" Pump

●

"Buffalo" Type "SL" Pump



FOR ALL ENGINEERING DATA on "Buffalo" clear water pumps, write today for Bulletins 980 and 955-P.

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adjusted and filled with the proper lubricant weekly.

Air tools that are equipped with filters should be inspected and cleaned regularly. Pneumatic tools will take more abuse and neglect than any other type of hand tools, but they are precision-built machines and will give longer service and better results if they are properly cared for. Periodic servicing and inspection and proper lubrication are paid for through increased tool life and better performance.

Barre Cloth

(*Continued from page 98*)

27. Improperly set clutch
28. Weak loom motor
29. Unevenly designed weaving pattern
30. Harnesses set unevenly

Mechanical failures that cause the filling to lie in the fabric unevenly also cause barré marks.

Worn shuttle fur causes the tension on the filling to vary.

Uneven shuttle tension is also caused by the shuttle friction or by the failure of the loom to properly check the shuttle.

How You Can Remedy Barre Cloth—Before Weaving

The remedy for barré cloth lies first in the yarn-preparation departments.

Cotton and spun-rayon yarns must be carded, spun, and twisted to a uniform size.

Spun-rayon yarns must be carefully blended if more than one type of staple is used in a single yarn.

Filament-rayon yarns must be uniform in denier.

All yarns must be processed on machines that are checked individually for length of traverse, condition of the spindles and flyers, uniform tightness of belts and bands, and all other conditions that contribute to evenness of finished yarns.

Slashing of the warps must be controlled. The moisture content of slashed warps must be uniform. The feed rollers on the stretch-control unit for filament-rayon yarns must be in good condition and properly set. Section-beam bearings must be properly aligned. Self-aligning antifriction bearings reduce the friction on section beams and result in more evenly tensioned warps.

Empty loom beams should be checked when they are removed from the weave room and before they are stored for future use.

The beam heads should be checked

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Dow Corning Antifoam A is a colorless, odorless, and translucent silicone defoamer that retains a honey-like consistency at temperatures ranging from —40° to over 200° C. It is practically inert physiologically and safe to use in food and drugs in concentrations up to 10 parts per million. Dow Corning Antifoam A can be applied as a dispersion in such solvents as cyclohexane, ethyl ether, gasoline, 2-ethyl hexanol, kerosene, methylene chloride, naphtha, pine oil, Stoddard solvent, tetrachloroethylene or toluene. It can also be applied as a dispersion in the foamer or in one of its ingredients; or as a pellet made with a dry ingredient of the foamer.

In the textile industry, Dow Corning Antifoam A is effective against a wide variety of foamers: sizing materials including resin-based warp sizes, dye baths, fabric printing inks, and finishing solutions including resin treatments such as urea-formaldehyde and melamine. One finisher for example, reports that only 1/10 of an ounce or 3 parts of Antifoam A per million are required to control foam in a 100 gallon tank of sizing solution.

Dow Corning Antifoam A Emulsion is a water dilutible emulsion containing 30% by weight of Antifoam A. It has the advantage of being more readily dispersible in a wide variety of aqueous foamers, but it contains emulsifying agents that cannot be used in foods or drugs. Dow Corning Antifoam A Emulsion is widely used, however, in the textile and process industries.

Here are some typical examples. Only 5 drops of this emulsion are required to kill foam in a 40 gallon tank of acetate sizing. In 50 gallons of a urea-formaldehyde-melamine finish for chintz, only 25 cc or 38 parts of Antifoam A Emulsion solids per million are required to control foaming.

save time and money in the textile industry. Foam wastes space in tanks and vats; slows production schedules; interferes with the uniform application of dyes, finishes and coatings. Production men in the textile industry have found that many of even the most violent foamers can be controlled by the addition of small quantities of Antifoam A or Antifoam A Emulsion.

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for cracks, and the barrel should be checked for splits or rough places.

A jig with rollers for the beam gudgeon should be set on a frame to check the gudgeons for trueness. Worn or crooked gudgeons should be repaired.

All bolts should be securely tightened.

The inspected beams should be carefully handled and stored so that they will stay in alignment.

At the Looms

Maintenance programs in weaving are the only remedy for barré cloth caused by loom mechanical faults.

Since the principal cause of barré cloth in weaving is the let-off, the first preventive step is to overhaul all let-offs periodically.

The survey shows that ropes and chains cause more wavy cloth than mechanical let-offs. If it is not feasible to replace ropes and chains with mechanical let-offs, the auxiliary friction bands such as those on C-4 and W-3 looms can be used with good results.

Roper let-offs can be rebushed with bronze bushings at a low unit cost. Once the bronze bushings are installed, further replacement requires little effort.

Bartlett let-offs can be replaced with newer Bartlett let-offs that have antifriction bearings. These bearings eliminate much of the trouble that causes barré marks.

Antifriction bearings are being used in whiprolls on all types of looms. Use of these bearings, too, results in fewer barré marks because the bearings reduce the friction on the warp, show little wear, and require almost no servicing.

The take-up is the second largest mechanical cause of wavy cloth and should be given regular attention.

Most of the work should be done on the take-up when the warp is out. The gears, studs, and bearings should be checked individually for wear and for freeness of movement. If much lint or foreign matter is accumulated on the gears, the gears and studs should be completely removed, cleaned in a solvent, replaced, and lubricated.

While the loom is free from a warp, the guide roll should be checked for lost motion or wear at the bearings, for being free in the bearings, and for being true. (It is a good idea to check the guide roll in a lathe if there is any doubt about trueness.) The pressure-roll covering should be checked and the pressure roll should be inspected just as the guide roll is checked.

The take-up roll should be checked for gripping power at the covering,

for wear at the gudgeons and bearings, and for freedom of movement. When possible, antifriction bearings should be used at the take-up roller bearings.

Other loom motions and parts that contribute to a small extent to barré marks should be checked occasionally, but only after the let-off and take-up are put into good condition—unless barré cloth has been traced directly to a loom.

Looms should be placed on a good floor that is free from vibration. Where there is a reasonable amount of vibration of a floor, felt or rubber pads can be used to reduce the vibration at the loom.

If barré cloth cannot be wholly eliminated, it can be reduced substantially by proper machine maintenance and settings and by proper yarn handling and weaving.

Alabama TOE

(*Continued from page 113*)

Mill S is running new drawing at 200 ft. per min. This mill believes that single-process drawing will be possible without affecting quality.

Mill A doesn't believe in single-process drawing because it claims that the second process improves yard-to-yard weight variation and helps the break factor. This mill is running new drawing at 200 ft. per min. Breaker drawing averages 15% variation, and finisher drawing averages 18% variation (50-gr. card sliver, 60-gr. drawing sliver, Ulster tester).

Why Mills Like Antifriction Top Rolls on Roving Frames

Mill L: "Variation in roving and yarn is less, running conditions are better, and breaking strength is up 4%."

Mill F: "The real advantages of these rolls are the saving in oil and less possibility of getting oil on the stock. Variation is about the same."

Mill P: "We've been running 19 roving frames with antifriction top-roll bearings for 18 mo. without trouble. The main advantage is that there is no time lost for lubrication. Variation has not changed."

Mill S: "Absence of lubricant in the cots is going to give us better performance on the 1,462 ball-bearing and 120 needle-bearing rolls that we have. We also believe that the new rolls should turn more freely under heavy weighting."

Mill A: "The main advantage of our antifriction top rolls is the saving in labor and grease. Our regular rolls need greasing every 2 weeks, but antifriction rolls are taken out and examined every year."

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Long but not the longest of the brushes we make for textile processing, the 18½ foot brush shown here is typical of the fine trouble-free, long lasting, efficient brushes we make for all textile brushing purposes. Lengths to twenty-two feet *in one piece* are available.

This 18½ foot brush is used on a carpet shear, to raise loose threads for shearing close to the surface and to remove the sheared threads. The metal cores cannot sag or get out of alignment. The tufted nylon bristle is set in slotted metal and sealed fast with special waterproof cement and can be renewed when worn.

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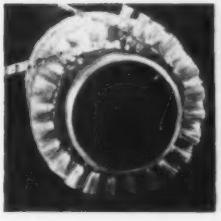
A furnisher brush that is light, strong, and has a firm bristle surface from end to end of the brush and that is easily cleaned.



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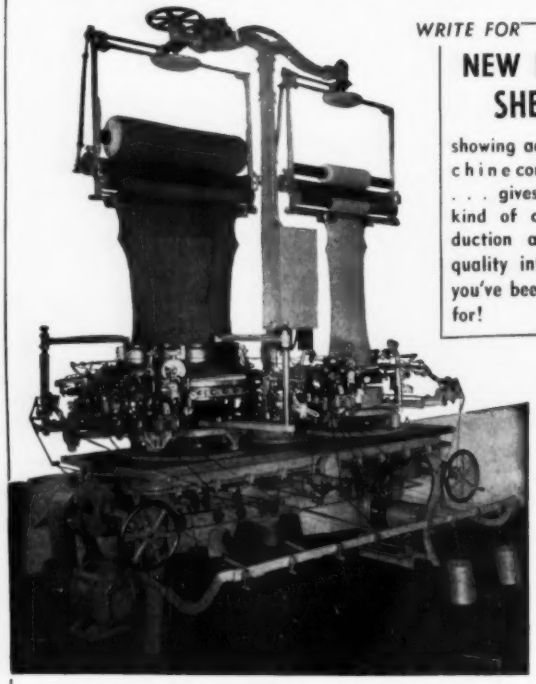

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Decorated Coatings

(*Continued from page 129*)

ber-covered backing roll, is very useful in obtaining decorative effects. It is not only suitable for printing simple designs but is ideal for topping and top-coating. When top-coats are applied by knife, small amounts of lint, dust, and undissolved particles will often cause scratches in the coating. The use of an over-all engraved print roll will apply the coating uniformly without these defects.

Surface printing has been used more extensively for the printing of films than of coated fabrics. The decorative effects that can be achieved by this type of printing should, however, prove very desirable for many applications.

One of the limiting factors in the development of surface-printing equipment for coated fabrics is the fact that most of the machines were built for the printing of wallpaper and similar items. Practically all of these machines are very narrow. Only wide widths of coated fabrics are practical, from both a cost and cutting-up point of view, for most applications.

Choice of Inks Is Important

Vinyl inks, such as those used for gravure printing, have not been found too suitable for most surface printing operations. The rapidly evaporating solvents that are normally used tend to dry in the felt blankets that are used to ink the engraving. It is very difficult to clean the blankets when this type is used. If more slowly evaporating solvents are used, they tend to soften the coating too much before they dry, and cause distortion and other defects. Inks have been developed, based on vinyl acetate and other resins, that can be dispersed in materials that are not active solvents for the coating.

In this type of printing, the rate of drying presents no problem insofar as the printing operation itself is concerned, since the raised design eliminates the necessity of any contact with the wet ink by succeeding print rolls.

Silk-screen and block printing, as well as stenciling, are primarily manual operations. This type of decoration is generally accomplished by the fabricator, or in small shops that specialize in this type of work, rather than by the coater. These methods of decoration, though inclined to be expensive because of the high cost of labor for the operation and the slow production, are well adapted for decorating coated fabrics. Specially formulated lacquers for each of these

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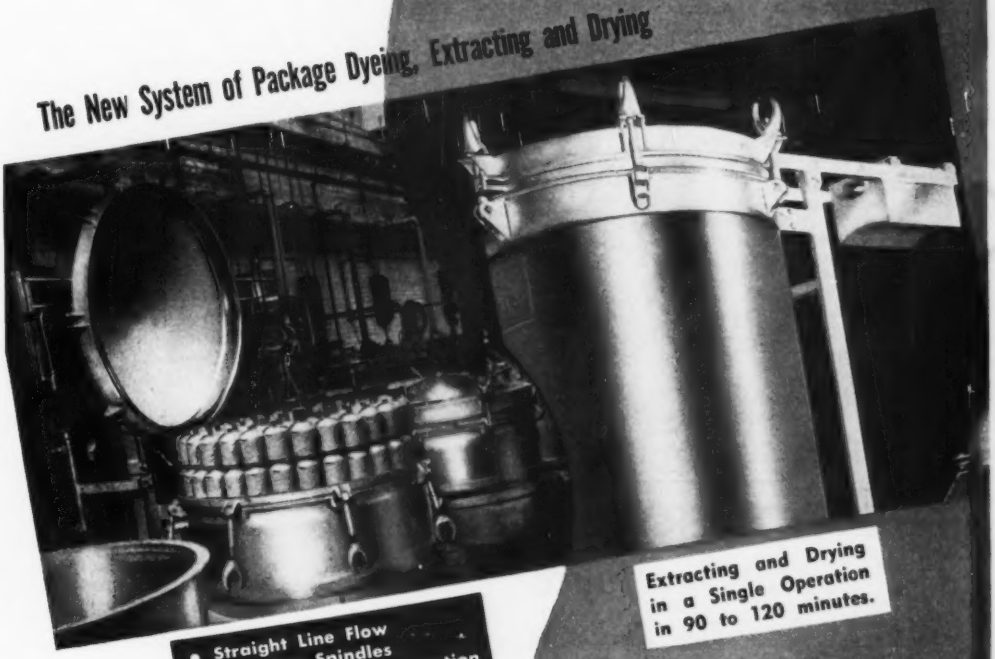

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methods are available from several reliable sources. When these are used, only minor variations from the techniques usually employed for the process are necessary.

Coated fabrics may be printed either before or after embossing. Often changing the order of these two operations will result in unusual effects, many of which may be very attractive. For example, printing the tops of a jacquard-fabric-type embossing with a contrasting color creates a definite appearance of a woven design in two colors.

Attractive designs, tastefully colored, are extremely important to the fabricator, who is the person the coater must please, since appearance usually makes the initial sale of his item, even though serviceability is also essential for a satisfied customer.

Tricot Setting

(*Continued from page* 115)

matically. It is set in operation by a sensitive thermocouple, and instantaneous response to temperature changes is achieved that results in stepless heat.

Provides Greater Yields

The McCreary automatic-feed system provides higher yields, and the automatic pinning and overfeed assures the maintenance of predetermined fabric yields. The automatic feed, which was designed to accommodate fabric produced on the 168-in. tricot machine, gives positive and accurate control of the feeding. The unit also has a new sensitive guider-finger, with electronic controls and G. E. Dynamic braking, that permits very close and accurate edge pinning. The positive-drive overfeed prevents slippage.

Part Replacement Simple

Another advantage found by the mill in the operation of this unit that also helps maintain production schedules is the fast, simple replacement of the "wire strips." When one of these burns out, it can be replaced in a minimum of time without removing the entire heating element from the box. This feature reduces replacement time substantially and effects a great saving in labor as well as parts costs.

Although various size units have been made, the most popular size unit used at the Native Laces mill incorporates two reflecting frames with heaters totaling 84 kw. Actual power consumption is considerably less than the rated 84 kw., however, since it is

automatically reduced by the electronic control to maintain the correct temperature.

Depending on the particular denier size, the nylon tricot is set at approximately 425° F., with an instrument temperature of 1,040° to 1,120°. In operation, however, higher heats are usually required for higher denier sizes, taking into account that nylon will plasticize at about 475.6° F.

Modified Bradford

(Continued from page 107)

is converted to a twisted slubbing, consideration should be given to a machine called the cone gill reducer. This machine is similar to any cone machine, except that in the drafting field, a bed of 18, 24, or 30 fallers is used to control the fibers. It is constructed with bobbin sizes of either 10x5 in. or 8x4 in. Drafts up to 7½ can be obtained in this machine.

The faller-pin control exercises the necessary restraint on the individual fibers to insure a steady flow of materials to the front roller, with a regular distribution of the shorter fibers throughout the mass.

The end taken from this machine has been kept to an evenness of within 10% of that delivered from the gill drawing.

This machine has been used on the Continent in the French system for wool and artificial fibers where it is desired to obtain a slubbing with twist for use on Bradford-system spinning frames from the condensed slubbing produced by French-system gills *frotteurs* or *avant* finishers.

Mills using this system all have their own individual ideas as to the proper arrangement of drafts and doublings, as well as the type of machines to be used. The ideal layout has yet to be developed.

Blends Processed on Either System

Blends of wool and synthetics or various deniers and types of synthetics may be processed on either the standard-Bradford system or the modified-Bradford system. This blending before drawing may be done at the card, the Noble comb, with blending gills, or at the converter.

The spinning qualities of wool are improved by the addition of a reasonable percentage of staple fiber, with the result that finer counts can be spun. There is a tendency, when blending various deniers and types of synthetics, for the fibers to unblend the more they are processed. One of the best methods of obtaining a good blend is the use of an intersecting

This wooden dye house roof has defied rot since 1924!

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melangeur prior to entering the first gilling of the drawing set.

This machine is a multiple-head intersecting-gill box in which the web, delivered from the individual heads, is placed one on top of the other, producing a ribbon similar to that from a cotton ribbon-lap machine. The delivery is usually into oblong cans in which the end is plaited back and forth. This end would be fed flat into a single-head, single-can intersecting-gill box in the first drawing operation. The materials, in the form of a sandwich, are then presented to the drafting element uniformly across the pin field of the fallers and a better blend is obtained than from any other system.

Wool-Synthetic Blends

(*Continued from page 126*)

into the comb, you will noil less, have a more even length, and have less difficulty in drawing off.

Extra power should be used in running a "cold" comb on some fibers.

Blends will give much less trouble than 100% synthetics because a mixture of wool fibers in the blend will lend the mass of stock some degree of the wool characteristics so suited to the Noble comb.

On the French Comb—

The stock must be thoroughly opened and parallelized by sufficient gilling before combing, or you'll have trouble with breaking, bending, and distorting the pins of the top comb.

This comb has the advantage of not having heated circles and is therefore adaptable to thermoplastic fibers.

Generally speaking, the delivery onto an apron makes running synthetics easier on this comb. However, static must be eliminated, or you will have trouble at this point. Heat, moisture, and proper finish and oils will usually take care of the static problem.

It must be borne in mind that 3-den. synthetic fiber is roughly equivalent to 90s wool and 6-den. equivalent to 64s. Because there is no premium on length and fineness, mill men are tempted to get the longest and finest synthetic fiber, blend it with a medium wool, and try to run this blend on equipment designed for medium wools. Such a blend obviously doesn't run well. Neps are created in carding and pass on through combing, etc.

One of the first considerations in successful processing of synthetics and blends is, therefore, to select the length and fineness of fiber for which your machinery is suited.

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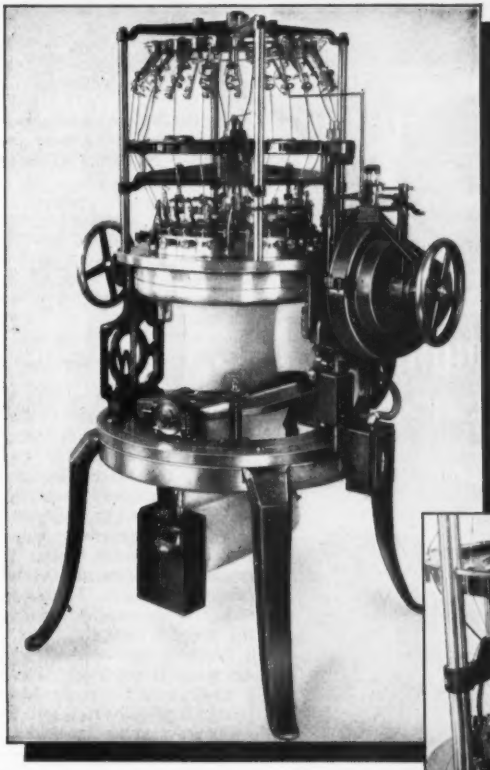

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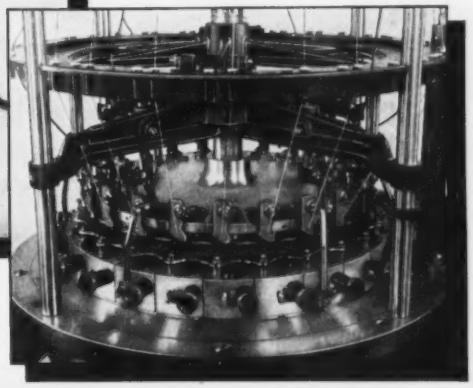

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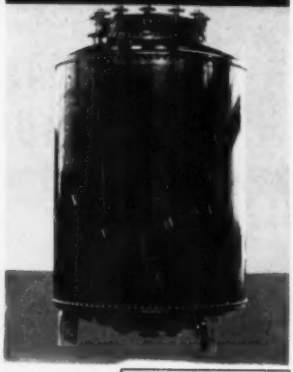

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TOWERS • BINS • STANDPIPES

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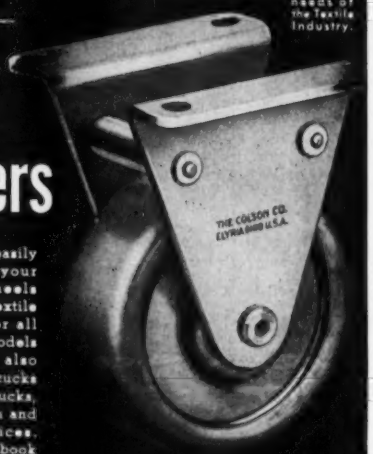

Model 3-408-16 caster with thread guards, designed especially for the needs of the Textile Industry.

Rolling stock that doesn't roll easily cuts efficiency and profits in your mill. Colson *specializes* in wheels and casters engineered for the Textile Industry. They roll easily over all floors, are rust-resistant—many models have thread guards. Colson also manufactures a wide range of trucks for the Textile Industry—hand trucks, platform trucks, box trucks, drum and barrel trucks and special devices. Write us or consult your phone book for the Colson representative near you.

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THE COLSON CORPORATION
ELYRIA, OHIO
CASTERS • • LIFT JACK SYSTEMS • • INDUSTRIAL TRUCKS

Textile Equipment News

(Continued from page 154)

Lint-Tight Manual Starter For Textile Applications

FLUSH HANDLE and heavy clamping pressure on a neoprene sealing gasket make this loom-motor enclosure accident-proof and lint-tight.

A newly designed loom-motor starter featuring a lint-tight enclosure has been brought out by Square D Co., 4041 North Richards St., Milwaukee, Wis. The heavy sheet-steel enclosure is provided with a neoprene gasket that effectively excludes the lint and dust normally found in textile applications.

The flush handle of the enclosure reduces the possibility of damage or accidental operation. It is easy to operate with a simple up and down motion. The handle position clearly shows whether the starter is on or off.

An over-center cam-type cover latch provides heavy clamping pressure on the neoprene sealing gasket. Vibration or shock conditions do not affect the toggle mechanism. The cover is interlocked to prevent opening when the starter is on.

Protected-type overload relays permit group fusing of several motors on a single branch circuit. Mechanical linkage is provided to permit the forcing open of contacts with direct pressure from the handle. The mechanism is trip-free; so it is impossible to hold the contacts closed while an overload condition exists.

Get that SCRAP Back to WORK!

Georgia TOE

(*Continued from page 112*)

Examples:

Mill *E* has 100 looms and uses 3.75s filling. Batteries hold 20 quills, and the battery box holds 200 quills. Each can holds 100 quills. At each loom there are 320 quills, then. This mill figures on 60 extra quills per loom, to bring the total to 380. For 100 looms, then, 38,000 quills are needed. For spinning, the mill figures ten doffs for each of the 216-spindle frames. Spinning quills come to 12,960 and make the grand total 50,000 quills, or 500 per loom.

Mill *F* has 240 X-2 looms on 40-in., 48x44, 3.25 sheeting. There are 5,040 spindles on this construction that require a minimum of 10,080 quills. A minimum of 4,800 quills is required to fill the 20-quill batteries. Each quill of 17s runs 5 min. 25 sec., so each loom needs 44.3 quills every 4 hr.—for a total of 9,732. An equal number of quills is kept ahead. This mill figures on twice the number of spindles for stripping and transporting—10,080 quills. Another 9,732 clean quills are kept in storage. The sub-total is 54,-156 quills, to which is added 13% to make a grand total of 71,756 quills—just about the 300 per loom that Draper Corp. recommended to the mill.

What Method of Creeling Roving Do You Use To Keep From Making Slubs or Soft Places?

Among the suggested methods were:

Use a small lap.

Break back the end to remove the piece-up slub on lighter yarn numbers.

Untwist both rovings and then twist the old to the new with a splice ½ in. longer than the distance between the nips of the middle and back rolls.

Pinch off the ends as close as possible.

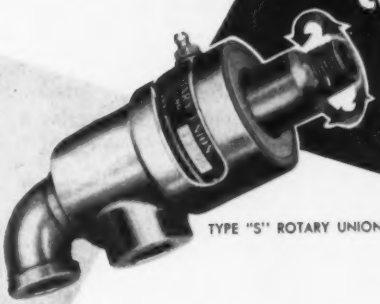
Just as the new roving enters the trumpet, twist off the tail of the old roving by twisting to the right to take the twist out.

Lightly twist the end of the full roving bobbin to the old roving. Pull the tail of the old roving loose as soon as the new roving begins to feed.

Make all splices as close as possible to the original diameter.

Break each end with a taper, and match the tapers.

Break off any frayed roving from the end on the full bobbin. Twist the end from the full bobbin onto the end that is running out just behind the guide trumpet, and use a slight pressure in twisting. Break off the tail

ROTARY UNION
(REG. TRADE MARK)
a revolving steam connection
PIPE SIZES 1/4" THROUGH 3"

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One reason why we can guarantee ROTARY UNIONS to give a perfect seal for at least a year, is because each ROTARY UNION *floats* on its own built-in flexible hose connection, thus taking stress and strain from moving and sealing parts. Many ROTARY UNIONS have been in service for three years or more without requiring tightening or adjusting service of any kind.

These flexible hose connections also do away with complicated piping and brackets and permit installation in 15 minutes or less.

If you haven't used ROTARY UNIONS, install a set on a slasher, dry can, embosser, or printing or coating machine and compare their economy with that of any stuffing box, packing joint, or other steam joint. Our own direct sales engineers are available for consultation. Call our nearest office or write Dept. 8W for our catalog.

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(His business paper ... of course)

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Any man with business on his mind puts his mind on his business paper. The **Best Informed Men in your Field** somehow *find* time . . . even when time's their scarcest commodity . . . to read, not a page or two, but thoroughly. And regularly. You'll find such reading pays off in new ideas, fresh approaches to tough problems, a constant touch with new products, new materials, new tools. Read every issue, editorials and advertising. Both are jamful of news and "how-to" that will keep *you* one of the **Best Informed Men in your Field,** too.

Textile World

One of a series of advertisements prepared by THE ASSOCIATED BUSINESS PUBLICATIONS

of the roving left behind the piece-up so that no more than a 2-in. tail remains.

In Piecing Ends, Should Spinners Lap the End or Twist It?

Out of 22 mills that answered this question, 14 recommend twisting the end and 8 prefer the lapping method.

At Mill E, filling yarn is twisted up, but warp yarn is lapped so that the end will break on the spooler.

Have You Had Any Trouble Changing From a 28-in. to a 32-in. Beam on a Barber-Colman Warper?

Mill S: "We found that the comb had to be raised about 4 in. Pressure on the clutch-operating arm had to be increased, and the beam-arm length had to be increased. Clutch and brake facings have to be replaced about twice as often. We are very well satisfied with the results."

Waste Disposal

(*Continued from* page 118)

The collector line dumps the wastes into the wet well; and from there, two 500-gal.-per-min. pumps force the wastes through an 8-in. vitrified clay pipe force main to the trunk sewer 35 ft. above the collector main.

The collector main is about 350 ft. long and is constructed of 12- and 15-in. vitrified clay pipe. It is laid at a 1% grade and is capable of delivering at the rate of 2-million gal. a day. Located in the old water trench just below the floor of the dyehouse, it is supported every 12 ft. of its length by a 4-in. *H*-beam pedestal extending some 9 or 10 ft. above the bottom of the trench. Each pedestal has a side brace for additional support.

On top of the pedestals are two 6-in. steel beams with a steel cradle every 3 ft. that fits the outside diameter of the vitrified clay pipe. Every other section of pipe has a 12-in. *T* opening on the upper side to receive the various wastes from the line above.

The *T* fittings not in use and manholes on the line act as overflows in case the pipe gets clogged. All overflows pass out to the river by the trench.

The joints of the clay pipe are caulked with two strands of oakum and then filled with lexonite compound flush with the outside of the

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More and more textile manufacturers depend on Celanese for their supplies of acetic acid. New production units, expanded storage and shipping facilities have made Celanese your most dependable source for highest quality acetic acid.

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bell. A sturdy collar reinforced with wire mesh is placed over each joint.

The wet well was constructed of the lower end of the pipeline in the trench, with a 12-in. wall between it and the two 500-gal.-per-min. pumps. All wastes are pumped to the trunk sewer through a 4-in. venturi meter and 8-in. force main. Automatic recorders indicate rate of flow and record waste discharge.

American System

(*Continued from page 108*)

Many of the mills using the American system have well-equipped and well-manned laboratories where graphs of fiber distribution and micron measurements of fiber diameters are made before tops are bought. Mills having this knowledge can estimate within very narrow limits what the end breakage in the spinning will be and the quality of yarn that should be produced.

10% Variation Standard

Only five years ago, when the first 100,000 spindles of this equipment were in place, we were setting a standard of 20 to 25% variation in diameter of finished sliver as the requirement. Today it is very common and almost standard practice to produce finished sliver with 10% variation, and practically no well-run unit allows the variation to exceed 15%.

This improvement has been accomplished by the real interest and efforts of top makers to provide the right type of tops for the American system. In turn, the top makers and mills have been helped to a great degree by the marvelous instruments that have been developed and put on the market in the past few years, like the Uster, the Pacific, and the one developed by I.T.T. and made by Brush. These instruments measure evenness graphically and have provided factual information that has resulted in standards of variation and deviation. The setting up of these standards has resulted in steady improvement of all types of yarn made on all types of equipment from all types of fibers.

The standards set for American-system yarns have been raised, and variations in top and finished sliver accepted a few years back for Bradford- and French-spun yarns as being good are very much higher than we would accept today.

The accompanying table shows results of tests made with a Uster tester of 20s, 30s, and 40s yarns spun on American, French, and Bradford sys-

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Used With Hard Or Soft Water

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BRITEWAY will not separate, jell or harden even in sub-zero weather. Just put one economical cupful in a pail of water and watch it "suds-up" into a rich, cleansing lather. Approved by the U. S. Rubber Flooring Manufacturers Assn., for use on rubber floors. Excellent, too, for linoleum, mastic, wood—and painted or varnished surfaces.

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Send us a small supply of your Asbestos Yarn and we will wind and return with Testwind Report and Catalog.

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tems. These figures are the average of three separate tests on each system of each number yarn. In every test the American-system-made yarns were best in average variation, maximum variation, and percentage of deviation. These averages were all made from yarns sent to us by different mills asking us to compare yarns made on their conventional systems with yarn made on the American system with the same tops and same twist in yarn.

Machinery Requirements Lower

So much for comparison of yarns. Let's compare the machinery required on Bradford and American systems. The accompanying panel gives the figures. From these figures it is evident that the Bradford system would cost much more for equipment and floor space, and there would be a difference in cost of operation of at least 10¢ per lb. in favor of the American system.

With these facts, together with information we have received from reliable concerns where our American system and the conventional systems are being operated under the same management, we would claim:

1. Yarns produced on the American system are equal in quality to yarns made on Bradford.
2. The American system is more flexible. Mills have produced from 13s to 54s worsted count from single-process roving, double in creel, using 58s to 60s and 70 to 72s tops.
3. Roving made for American-system spinning requires much less twist than roving required for Bradford system with a corresponding increase in production of American system roving frames per spindle.
4. Much higher drafts can be run on both roving and spinning frames because of a superior drafting system. The average roving draft runs from 12 to 18, but good results have been had with drafts as high as 24. Spinning drafts of 12 to 14 are used in most mills for best results, but again we have seen good quality yarns made with drafts up to 22.
5. The American system results in a very much lower operating and maintenance cost because of the reduction in processes and because the machines are much easier to operate and keep in running condition. With these advantages, plus the lower cost for equipment and floor space, an advantage of at least 10¢ per lb. on 36s can be realized. Summed up, this saving means a saving of over $12 per year per spindle on a two-shift basis.

Today some of the best concerns in this country are operating the

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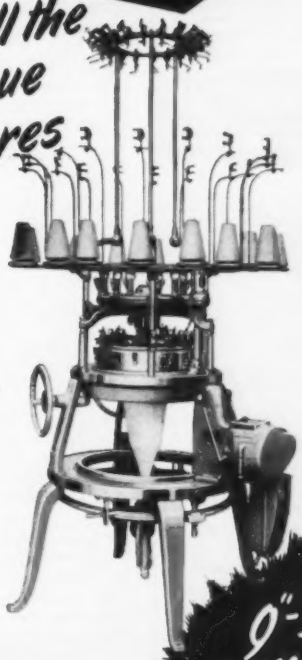
with all the unique features



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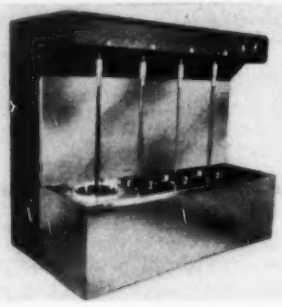
American system, and the fabrics made from these yarns are being purchased by the leading clothing manufacturers in this country. Also the development of this system has allowed spun-rayon mills to use fibers up to 5¼ in. in length and has opened the door for the designer to almost unlimited combinations of fibers that have led to new styling to a much greater degree than would have been possible with conventional equipment.

NPA Gives Green Light. The construction of 22 fiber and textile plants and allotments for twenty others now under construction were authorized recently by the National Production Authority.

Approved for new construction were: American Viscose Corp. for rayon yarn ($54,100); E. I. du Pont de Nemours & Co., Inc., for textiles ($39,500,000) and yarn ($785,000); Firestone Tire & Rubber Co. for tire-cord fabric ($2,974,000); Hess, Goldsmith & Co., Inc., for nylon ($400,000); Downington Mfg. Co. for cotton cloth ($885,654); Dunn Woolen Co. for woolen material ($21,250); Peerless Textiles, Inc., for woolen cloth ($1,000,000); and Norris Cotton Mills for broad-woven piece goods ($22,237).

Allotments for plants now under construction included American Enka Corp. for high-tenacity rayon ($10,769,500); American Viscose Corp. for rayon staple ($32,382,400) and for viscose yarn ($11,866,000); Celanese Corp. of America for acetate yarn ($876,000); Courtauld's, Inc., for staple rayon ($25,000,000); Delaware Rayon Co. for rayon fiber ($4,836,700); E. I. du Pont de Nemours & Co., Inc. for Dacron-fiber textiles ($2,500,000), for Dacron fiber ($39,276,500), and for nylon ($84,414,000).

Also authorized to go ahead by NPA were Goodyear Tire & Rubber Co. for weaving rayon fabrics ($2,879,417); Hartford Rayon Corp. for rayon yarn ($4,600,000); Industrial Rayon Corp. for rayon tire cord ($5,125,000) and for rayon tire yarn ($7,899,250); North American Mills for rayon tire yarn ($23,566,636); Clinchfield Mfg. Co. for cotton textile cloth ($2,448,292); Dundee Mills for turkish toweling and corduroy ($1,343,500); Yates Bleachery Co. for cotton goods ($120,000); American Thread Co. for sewing thread ($9,254,000); Greenville, Miss., plants for duck and blankets ($8,000,000); Henderson Cotton Mills for feed-bags sheeting ($2,092,350); and Reeves Bros., Inc., for textile fabrics ($2,348,750).

THE
TERG-O-TOMETER

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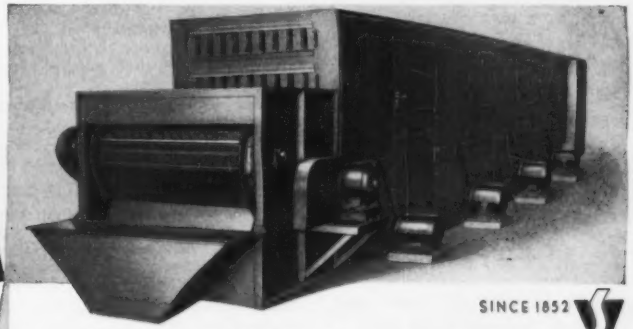

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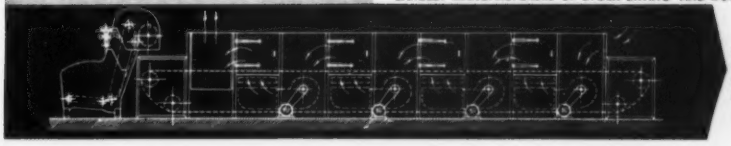
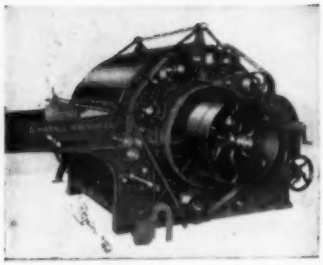


Schematic diagram of the SARGENT CONTRA-FLOW SINGLE APRON DRYER showing direction of travel of air through fans and heating elements. Material travels in opposite direction.



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Does not break the fibre even of long-stapled wools.

Large capacity, unequaled for making a superior mix. Grate racks underneath cylinder can be dropped for convenience in cleaning.

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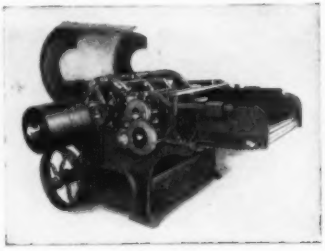

Atlas Mixing Picker

With 12 Bars of Teeth and Two Pairs of Feed Rolls

Flat, hardened steel teeth, are dovetailed into the bars so that it is impossbile for them to get loose or fly out. This method eliminates the use of set screws, which collect stock. Teeth of this type can easily be renewed at small expense when necessary.

Send for Bulletin 191B

Curtis & Marble
MACHINE COMPANY
WORCESTER, MASSACHUSETTS, U. S. A.

New Dyes and Chemicals

(Continued from page 156)

makers claim. When used with basic dyes, the two-bath method is recommended; the basic dye is applied in a separate bath either before or after the Calcofluor Yellow HEB.

The dye has good fastness to washing, perspiration, dry cleaning, and crocking when applied to acetate or nylon, the company states. Fastness to light in most depths of shades is moderate but compares favorably with most dyes of comparable brilliance.

New Uses for Firmel Are Told

Firmel, a product of Bryant Chemical Corp., 6 North St., No. Quincy 71, Mass., is generally used along with urea-formaldehyde resins to obtain such finishes as permanent glaze, and crush-resistant finishes where a degreee of firmness, or worsted-like hand, is desired.

It can be used by itself to obtain a crisp, full hand. If a catalyst is used along with it, it becomes permanent when cured, according to the makers.

Additional uses are to apply the product in the last rinse to reduce the tendency toward crocking of both sulfur and naphthol colors; it is being employed as a component part of water soluble carriers for bronze powders in metallic printing.

Battery Gauges

(Continued from page 95)

5. The Battery-Positioning Gauge

The gauge is used to align the hopper stand with the lay. Insert the shaft in the hole at the base of the hopper stand that holds the transferrer stud and tighten the setscrew. With the reed in place and properly aligned, move the two arms along the shaft. Adjust the hopper stand until the squared faces of both arms are flush with, but not binding against, the reed. Tighten the hopper-stand bolts, drill the holes, and insert dowel pins through the hopper stand into the breastbeam.

7. The Shuttle-Positioning Gauge

This gauge places the shuttle under the battery in correct position for the filling transfer. The gauge comes in two sections: one for the battery and the other for the shuttle. The shuttle should be positioned so that the lug of the battery gauge fits into the slot of the shuttle gauge when the picker stick rests against the back of the box plate and the shuttle spur fits snugly in the picker. Normal adjustments are made by increasing or decreasing the thickness of the lay-end

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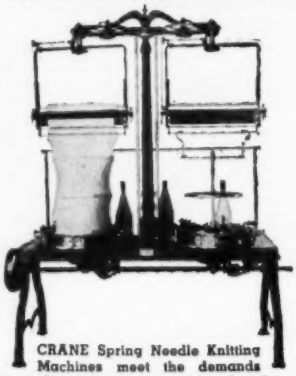

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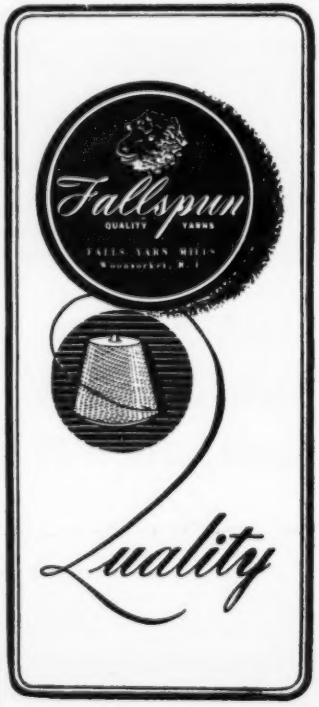


strap or by altering the bore of the picker.

You can check this setting by pulling the transferrer down until it touches the quill in the battery and making a pencil mark on the back of the transferrer head directly above the middle ring of the quill. When the transferrer is pushed down and the quill is forced into the shuttle, the pencil mark should be between the first and second rings of the quill (counting from the butt).

Some Settings Don't Require Gauges

There are other important settings that affect the transfer of the filling, and among them is the height of the latch finger. The common method—not the best—is to set the notch of the latch finger higher than the bunter to give a working margin that will compensate for any tardiness of the changing mechanism.

The best method, however, is to set the latch finger so that the bunter enters the notch of the finger squarely. It is better to have an occasional revocation than to have the bunter, by repeated action, wear a false notch in the finger, throw the quill through the shuttle, and perhaps break the lay or hopper stand.

There should be a $\frac{1}{16}$- to $\frac{1}{8}$-in. clearance between the bottom surface of the transferrer and the rings of the quill in the shuttle when the lay is in the extreme front position. Faster loom speeds require higher settings of the transferrer above the rings of the quill.

The transferrer spring should have enough tension to hold the transferrer upright and to arrest the follow-through stroke on the transfer.

After any major battery settings are made, the loom should be slowly turned by hand and several transfers of filling made. If all parts seem to be operating correctly, the loom can be started under power. Fill the battery with empty quills, and if the quills are transferred to the shuttle without a single miss, the loom can be put back into service.

Rib Knitting

(Continued from page 109)

tant for efficient operation and production of quality fabric.

One method used at Lawler to prevent dropped stitches is to set the yarn guide so that the latch of the tension is also important to prevent dial needle does not close before the cylinder needle catches the varn and pulls it down across the latch of the dial needle. Exactness in this setting will save a lot of defects in rib knitting.

To avoid knitting oversize or length, exact adjustment of the stitch cam of the dial and cylinder needle is maintained. Close adjustment of the yarn tension is also important to prevent length varying from standard. A check-up on these adjustments is made hourly at Lawler during sizing operations.

In sewing the bottom of the coaster, a laid-in core of 10/4 yarn is hemmed into the bottom and an overlap of about $\frac{1}{2}$ in. is left. The hem is carried beyond the core to make a smooth finish. A critical point in hemming is that there be no distortion or stretch of the rib when the bottom is hemmed; otherwise, the hemmed bottom will not give a perfect circle when the coaster is stretched over the bottom of a glass.

Extra length in knitting allows for shrinkage during finishing operations, plus a small amount of knitted length to be cut off during hemming. The hemming operator carefully measures the length of the coaster and determines just how much must be cut so that the finished coaster is 4 in. long.

Russian Machinery

(Continued from page 137)

about equipment described in the literature but not exhibited was that the one-process cotton picker produced a 175-lb. lap 218 yd. long. Production claimed is 286 to 396 lb. per hr.

A card designed to handle such a lap was also described. Production claimed was 15 lb. per hr. Cylinder speed was 175 rpm.

The spinning frame shown had a single-apron drafting system with a self-weighted roller. Drafts from 8 to 25 were claimed. Ring rail was forged steel. A centralized-lubrication system was used in the head end. Spindle speeds of 9,200 to 10,300 were also claimed. This frame was spinning a 56s yarn from 8-hk. double roving. A British technician commented that the design was similar to that of British equipment.

Round Table

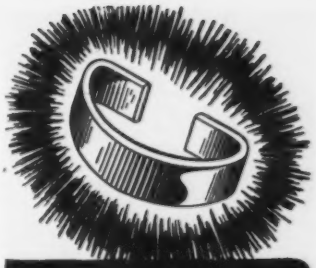
(Continued from page 160)

ers and public alike. This kind of public relations should be consistent rather than speedy, and interesting rather than spectacular.

Haste here does little good. And accepting even the most successful campaign for community acceptance as being final in its results is a short-sighted view. Be willing to lay a solid foundation first, but never consider the job completed. Only that method assures public cooperation, worker contentment, and enthusiastic local support for the textile industry.

GEORGE M. DODSON

Harrisburg, Pa.



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Static Electricity

(*Continued from page 135*)

range actually reduces the amount of static electricity found, instead of increasing it as is normally expected. This unusual condition is encountered under very low humidity ranges, not often found in practice.

The disadvantages of high humidity as a means of static control are obvious. In the case of the new non-conductive fibers, high humidity is not very effective, because these fibers also have a low moisture regain. In the case of the natural fibers that have a higher moisture regain, high humidity conditions are capable of controlling the static problem, but these high humidity conditions are often unpleasant for the working personnel and make ideal conditions for the corrosion of expensive machinery and parts. Humidity conditions must generally be kept within a narrow range even for the hygroscopic fibers in order to obtain satisfactory results. As we shall see later, there are other means more satisfactory for the control of static.

8 What is the place of electrical devices in the control of the static problem in textiles?

There are only three basic electrical devices that up to the present have been employed in an attempt to control the static problem in textile manufacture. Each of these basic types may take many different commercial forms.

It is possible to ground each machine that comes in contact with the textile more or less effectively. This grounding will prevent a build-up of high charges in the machine or in the part touching the textile, but the charge built up on the textile is essentially unaffected. The grounding of machinery may be a useful technique in protecting personnel.

Grounding devices may actually be made to contact the moving textile in an attempt to carry off the charge built up on the material. Metal brushes or metal foil connected to ground may contact the moving textile at key points with the thought that the charge on the fibers will be drained off. Unfortunately, however, the amount of charge that may be drawn off by such devices is not large enough usually to completely discharge the static electricity entrapped within the fibers. Such devices, however, are often useful to prevent extremely high voltage build-up at points where explosion of vapors could take place. A very definite disadvantage in such grounding devices is their short life, if the device contacting the fabric is very light. If we use a heavy brush or contact with a longer life we may cause damage to the fabric.

Radioactive devices usually consist of bars containing the radioactive substances that are suspended above or below the moving textiles. The outstanding disadvantage of this type of device is that when static conditions are very severe or when the textile moves at high speeds, the textile cannot be bombarded with a high enough concentration of ions to discharge the static completely unless prohibitive concentrations of radioactive materials are employed.

The high-frequency or high-voltage discharge bar can be placed at key spots where static elimination is most desirable. The difficulty with such devices is that without careful control and adjustments, the moving textile may even be recharged where intense conditions are required. It has been reported that maintenance costs for such devices are often excessive.

A recent modification of the high-voltage discharge device has been the so-called controlled - diffuse - discharge unit, also based on the principle of bombarding the textile with ions that have been produced in the air by the high voltage. In this device it is said that the moving textile is bombarded with ions having a charge opposite to that on the goods, and that as soon as the charge on the cloth has been neutralized, the discharge from the bar is instantly diverted to "collecting targets" built into the static-control bars. In this way there is no possibility of recharging the textile.

The obvious disadvantage of all of these devices is that they can only be used at key spots. As soon as the textile has passed the spot and contacted a new surface, static electricity is again generated with all its attendant troubles.

9 What is the place of chemical antistatic agents?

In theory the use of a chemical antistatic agent on the textile is the ideal method for controlling static electricity in the textile.

A chemical antistatic agent can be put on the fiber and it will travel along with the textile to do its work at every point. Also, from the consumer standpoint, the use of a chemical antistatic agent is the only possible answer to static control in clothing.

This does not mean that there are no problems in connection with chemical antistatic agents. There is the problem of where to apply the antistatic agent. Should it be easily washed off, or should it be fast? What about the effect on the hand, on strength and on the appearance of

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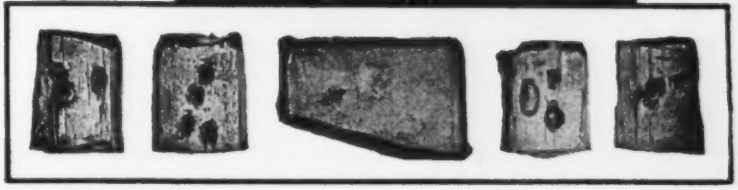

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the fibers? We often must take into consideration its compatibilities with many materials. We must think about whether it will affect the lightfastness of the colors, or if it will develop an odor. In fact, use of chemical antistatic agents poses many problems. But inherently, only by the use of chemical antistatic agents can we look for a real solution to the problem of static control in textiles.

10 How does a chemical antistatic agent work?

The mechanism whereby most chemical antistatic agents do their work is in the field of conductance. Even if the antistatic agent also makes use of other processes, it always has some effect in improving the surface conductivity of the fiber and thereby helping the charges to go more readily to ground or to the atmosphere. Any surface-active agent that forms ions in solution, when placed on the surface of a fiber, even in minute amounts, must improve the surface conductivity of the fiber. On this basis, a film of soap, sulfonated oil, or synthetic detergent will improve the surface conductance of fibers and will theoretically assist in the removal of static. It must be borne in mind, however, that while most chemical substances applied to a fiber will increase the surface conductivity of the fiber, some chemicals are many times more effective than others in this respect. This difference is due to some fundamental relationship not understood and only partially related to the conductivity powers of the chemicals themselves in solution. There are indications, however, that the improvement in surface conductivity caused by chemical antistatic agents is related to the type of film the agent forms on the fiber and to the way in which the molecules are oriented on the fiber.

Another way whereby a chemical antistatic agent can do its work is in the matter of hygroscopicity. This is particularly important with the new low-regain synthetic fibers. We have seen that the presence of moisture on the surface of a fiber would assist in the lowering of the surface resistance of the fiber and hence improve the rate of charge removal. Antistatic agents that are hygroscopic thus can do part of their work by furnishing molecules of water right on the surface of the fiber. This water also serves to activate further the chemical antistatic agent by partial solution of the active groups of the agent in the water.

Thirdly, a chemical antistatic agent may do its work by developing a charge opposite to that formed within the fiber itself when the treated textile is rubbed or comes in contact with another substance. This mechanism also seems to be related not only to the chemical nature of the antistatic agent but also to the orientation of the molecules of the agent in the film put on the fiber and on the nature of this film.

A chemical antistatic agent can thus do its work by any one or all three of the above-mentioned ways. It appears, however, that in order to be really effective, an antistatic agent should make use, at least to some extent, of all three.

In passing we must not neglect to mention the possibility of the incorporation of radioactive elements within the molecule of the antistatic agent itself. It is possible to visualize a chemical antistatic agent something like a one-man band. In such a utopia, we can see charges being conducted away to the air and to the ground, opposite charges being formed and neutralizing other charges, and at the same time the fiber being constantly bombarded with charged ions. This solution is really something for the future.

11 What is the difference between a finishing agent with antistatic properties and a straight antistatic agent?

Many finishing agents in themselves have some antistatic properties. Many finishing agents contain or consist of sulfonated oils, fats, or soaps. Many contain salts. All of these ion-forming compounds must increase the surface conductivity of fibers to some extent. If the finishing agent is hygroscopic, it also must have some antistatic properties. If by any chance the finishing agent doesn't have any ion-forming compounds or any hygroscopic agent, a hygroscopic agent can be added or a sulfonated oil or similar ion-forming material can be added, and we have a finishing agent with antistatic properties.

Now the true antistatic agent is designed for one special job. Its antistatic properties are developed to the fullest. While antistatic agents may have softening properties or some other properties that are desirable, their antistatic properties are the main thing. In general, a true antistatic agent will have several times the antistatic powers of an equal weight of a finishing agent with antistatic properties.

12 Is there one best antistatic agent?

If this question means: is there one

(Continued on page 256)

Exploring the Community

(*Continued from page 161*)

working conditions can be adjusted to keep the executive productive.

These examples are just two from a long list of common ills. The problem of executive health is a wide one. Other industries are tackling it, and the textile industry can, provided interest is aroused. Why not suggest that your company be among the industrial leaders with a program like this:

(1) Arrange with nearby doctors and clinics for an annual preventive check-up for all key men at group cost

(2) Assure the executives the reports will be kept confidential and that the suggested treatment will be carried out.

(3) Reassure them that they have nothing to fear from the company as a result of the findings

It's a safe bet the morale of the home folks in your textile community will be lifted too. Wives and families share the burden of illness, and they'll appreciate your efforts to keep their men healthy and active.

Twister-Ring Grease

(*Continued from p. 119*

Grease Does Affect Ring Life

Here's a good case to prove that grease makes a big difference in the life of your twisting rings:

Grease Characteristics

	Grease A	Grease B
Type of soap	Lime-soda	Soda
Soap content	11.0%	4.0%
Mineral oil	89.0%	91.0%
Saybolt viscosity (100° F.)	150 sec.	—
Saybolt viscosity (210° F.)	44 sec.	65 sec.
Color	Colorless	Amber
Dropping point (ASTM)	180° F.	145° F.

Test Results

	Grease A	Grease B
Test 1. (hand lubricated)		
Wear after 4 hr.	49 mg.	30 mg.
Ring temperature after 4 hr.	155° F.	153° F.
Wear after 8 hr.	Excessive, failed after 5.5 hr.	195 mg.
Ring temperature after 8 hr.		153° F.
Test 2. (mechanically lubricated every 30 min.)		
Wear after 4 hr.	34 mg.	9 mg.
Ring temperature after 4 hr.	151° F.	127° F.
Wear after 8 hr.	84 mg.	27 mg.
Ring temperature after 8 hr.	156° F.	129° F.
Test 3. (mechanically lubricated every 3 min.)		
Wear after 4 hr.	27 mg.	3 mg.
Ring temperature after 4 hr.	155° F.	127° F.
Wear after 8 hr.	61 mg.	4 mg.
Ring temperature after 8 hr.	156° F.	127° F.

Conclusion: Grease B is better.

Throughout the tests where grease was applied manually, it was apparent that Grease A tended to flow too readily onto the face of the ring and, therefore, became depleted before the end of the 8-hr. period. Under the same conditions, Grease B fed at a considerably slower rate, and with considerably slower consumption was less than for A.

The application of minute quantities of lubricant every few minutes greatly reduced wear in both cases. But with ample grease being supplied mechanically throughout the runs, less traveler wear occurred for *B* than for A. As would be expected, ring temperatures corresponded to traveler wear. It's interesting to note that when *B* was applied mechanically instead of by hand at the start of the run, the average ring temperatures dropped by about 25° F.

Tests on Grease *B* showed that wear on the traveler was cut by two-thirds if 5% (by volume) of film strengthener was added.

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Angularity of Yarn in Warping Synthetics

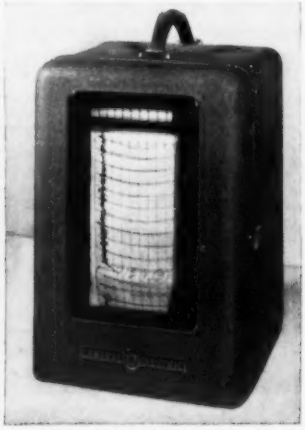
(*Continued from page* 101)

more abruptly to a peak as this yarn runs out. This pattern is again repeated by the other curves showing the relative sensitivity of the various tension devices to changes in the coefficient of friction.

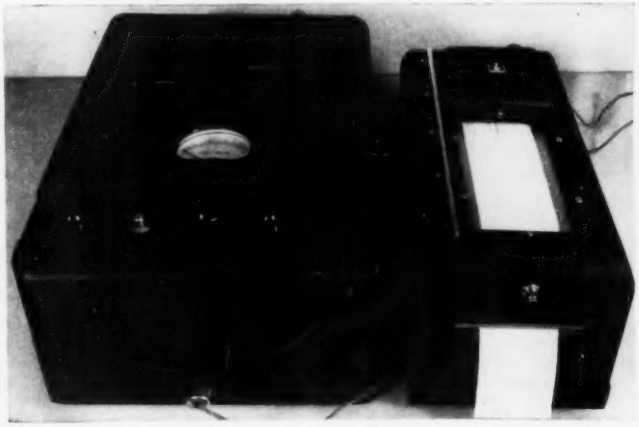
The cones that were used in this test were selected to show a significant variation. They do not necessarily represent normal behavior for acetate yarn. It is beyond the scope of the present study to interpret the cause for the variable frictional properties of the yarn within a cone. These tests were included to demonstrate that such variables do exist and that, even though they may be small, the use of an improper tension device may amplify them to troublesome proportions. The curve shown for the plate tension indicates that the long-range variation of the coefficient of friction within a cone is very small. Yet this small variation may cause serious difficulties when amplified with snubbing tension devices.

These Instruments Were Used In The Tests

STRAIN-GAUGE TENSIOMETER made by Statham Laboratories transfers force into electric energy and produces a record of tensions under study.



LONG-RANGE VARIATIONS were checked by G. E. photoelectric recording microammeter. Low-frequency variations in tension throughout a process cycle can be recorded.



HIGH-FREQUENCY VARIATIONS were recorded on Brush magnetic oscillograph with amplifier. This instrument has a frequency response of 0 to 100 cycles per sec.

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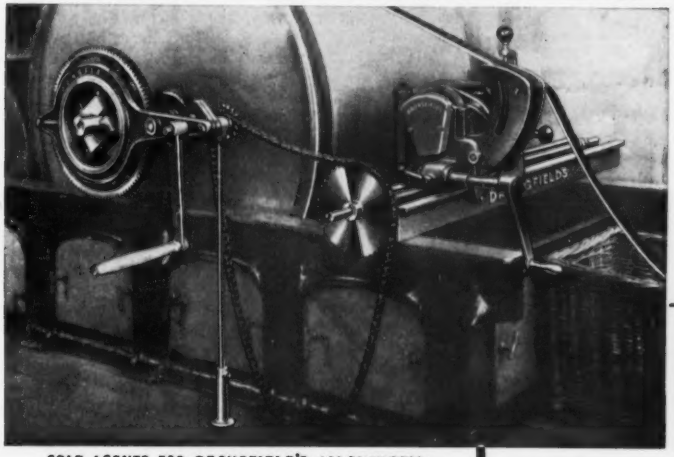

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Textile Calendar

American Society for Quality Control, textile quality-control conference, Clemson College, Clemson, S. C., Aug. 22 and 23, 1952.

7th National Chemical Exposition, Coliseum, Chicago, Ill., Sept. 9 to 13, 1952.

AATT, monthly meeting, Builders Club, New York, Sept. 10, 1952.

Fiber Society, fall meeting, Princeton, N. J., Sept. 10 and 11, 1952.

AATCC, Piedmont Sect., Hotel Charlotte, Charlotte, N. C., Sept. 12 and 13, 1952.

AATCC, Southeastern Sect., Atlanta, Ga., Sept. 13, 1952.

Third Canadian Textile Seminar, Queen's University, Kingston, Ont., Sept. 11 to 13, 1952.

AATCC, council meeting, New York, Sept. 19, 1952.

AATCC, general research committee meeting, New York, Sept. 19, 1952.

NACM, annual meeting, Portsmouth, N. H., Sept. 25 and 26, 1952.

Maintenance Engineers' School, course on evaporative cooling and refrigeration, Robert E. Lee Hotel, Winston-Salem, N. C., Sept. 29 to Oct. 10, 1952.

AATT, monthly meeting, Builders Club, New York, Oct. 1, 1952.

AATCC, Western New Eng. Sect., Rapp's Restaurant, Shelton, Conn., Oct. 3, 1952.

17th Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 6 to 11, 1952.

AATCC, Pacific Southwest Sect., Ojai Country Club, Ojai, Calif., Oct. 6, 1952.

Packaging Institute, annual forum, Hotel Commodore, New York, Oct. 20 to 22, 1952.

Beltwide Cotton Mechanization Conference, San Joaquin Valley, Calif., Oct. 22 to 24, 1952.

AATT, monthly meeting, Builders Club, New York, Nov. 5, 1952.

AATCC, national convention and dyeing and finishing exposition, Hotel Statler, Boston, Mass., Nov. 6 to 8, 1952.

AATCC, council meeting, Boston, Mass., Nov. 6, 1952.

AATCC, general research committee meeting, Boston, Mass., Nov. 6, 1952.

AATCC, Western New Eng. Sect., Rapp's Restaurant, Shelton, Conn., Nov. 3, 1952.

TRI, annual meeting, Hotel Commodore, New York, Nov. 17 and 18, 1952.

20th National Power Show, Grand Central Palace, New York, Dec. 1 to 6, 1952.

AATT, monthly meeting, Builders Club, New York, Dec. 3, 1952.

AATCC, Northern New Eng. Sect., annual meeting, LTI, Lowell, Mass., Dec. 6, 1952.

AATCC, Western New Eng. Sect., Rapp's Resaurant, Shelton, Conn., Dec. 12, 1952.

1953

Plant Maintenance Show, Public Auditorium, Cleveland, Ohio, Jan. 19 to 22, 1953.

ACMI, annual convention, Palm Beach Biltmore Hotel, Palm Beach, Fla., March 26 to 28, 1953.

22nd AMA National Packaging Exposition, Navy Pier, Chicago, Ill., April 20 to 24, 1953.

Natl. Assn., of Hosiery Mfrs., annual convention and conference, Claridge Hotel, Atlantic City, N. J., April 27 and 28, 1953.

Knitting Arts Exhibition, Atlantic City Auditorium, Atlantic City, N. J., April 27 to May 1, 1953.

Materials Handling Exposition, Convention Hall, Philadelphia, Pa., May 18 to 22, 1953.

Textile Institute, annual conference, Llandudno, North Wales, May 25 to 30, 1953.

AATCC, national convention, Stevens Hotel, Chicago, Ill., Sept. 17 to 19, 1953.

1954

Knitting and Allied Crafts Exposition, Grand Central Palace, New York, April, 1954.

American Textile Machinery Exhibition, sponsored by American Textile Machinery Association, Atlantic City Auditorium, Atlantic City, N. J., April 26 to May 1, 1954.

News OF THE MONTH

Report on New England. New England can save its textile industry, Seymour E. Harris, Harvard professor of economics and chairman of the New England Governors' Special Committee, flatly declared at the 107th quarterly meeting of the New England Council, held recently in Whitefield, N. H. The path to improvement seems, he said, to lie in a greater contribution per dollar of wages by New England labor; higher costs in the South; savings on some fringe items vis-à-vis the South; and improved management, inclusive of better use of research facilities, new equipment, and adequate appreciation of blends.

The committee chairman recommended a better organization of community defenses of old industries; a more friendly attitude of community, city, and state toward the textile industry; and a clarification of the effects of federal policies on the textile industry in New England.

In answering a self-imposed question, "Why has New England been losing textiles?" Mr. Harris said that the first and most important answer is differences in labor costs—wage rates, fringe benefits, management, work loads, and other aspects of productivity, including the management and modernization of equipment and buildings. Labor costs account for 70 to 95% of the differential between New England and the South.

One large mill operator found that the cost of operation in New England of a 960-loom mill exceeded the cost in the South by $291,000, or 27%, he continued. Some 78% of the difference was associated with payroll differences and 19% more with fringe payments, inclusive of unemployment taxes. This leaves little difference for power, fuel, taxes, water, etc.

It is clear, he said, that unless labor costs rise in the South or fall in New England, the industry in New England is bound to continue to lose. At present the differences in labor costs are at a peak. So to help New Eng-

land, Mr. Harris advocated a speeding up of unionization and the raising of wage and social security standards in the South.

He concluded that a great danger for New England also lies in the development of synthetics and blends. New England cotton manufacturers are aware of their importance. But it is not equally clear that New England woolen and worsted operators are.

Kayser Looks Ahead. Plans for 72-gauge hosiery-knitting machines are already on the drawing board, according to a recent statement by T. H. Mueller, president of Julius Kayser & Co., New York. It is Mr. Mueller's feeling that 72-gauge machines will be the next logical gauge of hosiery-knitting machine, particularly when yarn manufacturers are prepared to offer a knitting yarn finer than 15 denier, at present the finest yarn available for hosiery knitting.

Consequently, Kayser will probably continue to buy 60-gauge hosiery-knitting equipment in preference to 66-gauge machinery, as it is the company's feeling that 66 gauge will probably ultimately prove to be an in-between gauge just as 48, 54, and 57-gauge machines proved to be.

The company is completing an $8,000,000 modernization program in the United States, Canada, and Australia that it embarked upon ten years ago, involving the scrapping in the United States alone of approximately 150 hosiery- and tricot-knitting machines and replacing them with new high-speed equipment in finer gauges.

Completion of this program marks the exit of Kayser from the 45-gauge field with the exception of a few machines set aside for the knitting of a 70-denier service-weight stocking and a 16-in.-needle-bar outsize stocking, which outsize up to now has not been built in gauges finer than 45.

Reprocessed Wool Is Good. It is unfortunate that the public has not been educated to the fact that often a portion of reused or reprocessed wool can be blended with new wool to make a better fabric than one advertised and sold as "100% virgin wool," James H. Hunter, vice president of James Hunter Machine Co., North Adams, Mass., said in a paper delivered at Lowell Textile School at the beginning of summer. The occasion at Lowell, Mass., was the dedication of the first complete garnetting laboratory to be set up in any textile college in the United States.

Originally some reclaimed woolen and worsted fibers were of the finest grades, and very high prices were paid for them, Mr. Hunter continued. If the reclaiming processes are properly carried out, little change or damage to these fibers occurs. To be sure of obtaining shoddy of 100% wool, the rags should be carbonized. After use and careful and proper reclamation, these fibers are still better and can make better fabrics more cheaply than cheap grades of virgin wool.

The highest grade of shoddy—of good length, fine fiber, and 100% wool—can be used to manufacture fabrics and garments as beautiful in appearance and width and good wearing qualities as more expensive goods made from the same or similar grades of wool, the paper concluded.

Mr. White Speaks His Mind. There is an almost tragic lack of understanding on the part of New England communities and New England workers of the economic advantages that are presently enjoyed by Southern mills, said Francis W. White, president of American Woolen Co., at the June meeting of the Philadelphia Textile Institute Alumni Club in New York.

For the most part, these advantages are man-made, Mr. White continued. No natural advantages such as nearness to raw material sources, availability of native labor skills, more favorable climate, or even proximity to major markets are possessed by Southern woolen and worsted mills. The basic raw material—wool—is marketed almost entirely in the Northeast, whether its point of origin be in this country or abroad. In the Northeast live hundreds of thousands of craftsmen skilled and experienced in the manufacture of woolen and worsted fabrics. The construction of completely air-conditioned mills in Southern communities, which is the common practice today, would not indicate that natural climatic conditions are more favorable in Southern areas. And New York is still the major market in which the products must, for the most part, be sold.

Yet much of this woolen and worsted industry is now located south of the Mason and Dixon Line.

The speaker expressed the fervent wish that every man and woman connected with the industry, in high position or low, could see now what this situation means to him; and then act to protect himself as an individual from what he termed an "inexcusable economic crime."

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Please check your requirements immediately. We'll do our part to supply you with quality Watson-Williams Shuttles as quickly as possible.
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WIDEST RANGE OF EQUIPMENT FOR

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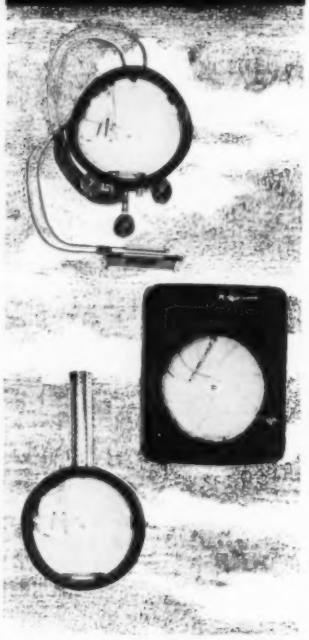

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HUMIDITY INSTRUMENTS

NEWS *of the Month*

Rayon-Acetate Standards. The American Standards Association, New York, has "approved" 51 performance standards for rayon, acetate, and mixed fabrics in various end uses. The new standards are the result of the work of 30 national organizations participating in the rayon-acetate project. The standards provide tests and specifications for laundering, washability, shrinkage, colorfastness, flammability, and other points.

Each of the 51 standards covers a provision for strength of fabric. While a sheer-dress fabric requires only a few pounds breaking strength, for example, such end use as athletic-uniform fabric requires a 100-lb. breaking strength.

The association-approved tests for shrinkage in laundering specify 2.5% as allowable shrinkage. Colorfastness requirements for laundering, cleaning, perspiration, pressing, sunlight, and atmospheric fading are also included. Special provisions are made for colorfastness to salt, pool, and fresh water for bathing suits. A basis for crease-resistance claims is provided. Tests also include flammability standards.

In all, 31 different test methods are provided to check the performance of various rayon, acetate, and mixed fabrics. They come from such different sources as ASTM and AATCC as well as from commercial standards and test methods established by individual concerns. Typical standards and test methods in this last category include Tebelized or the Monsanto method for crease resistance, permanence of finish to dry cleaning and laundering developed by American Viscose Corp., and yarn shifting (distortion) of woven fabrics developed by U.S. Testing Co.

International-Standardization Progress. Progress in the development of international standards for yarn testing and for fabric shrinkage has been made known by the International Organization for Standardization (ISO), which met recently in triennial session at Columbia University, New York.

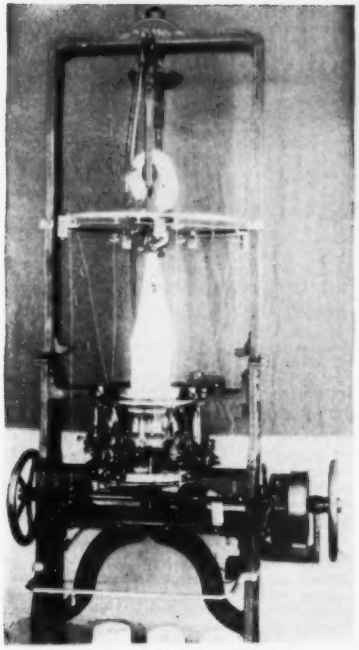
Chairman of the yarn-standards subcommittee was Dr. A. G. Scroggie, Textile Fibers Dept., Textile Research Div., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Principles discussed by the 29 delegates from 13 countries on the yarn-standards committee included the method intended for determining the breaking load and elongation of single strands of yarn on different types of instruments such as the constant-rate-of-load machine, pendulum-type, and constant-rate-of-traverse machines.

W. D. Appel, chief, Textile Section, National Bureau of Standards, Washington, D. C., chairmanned the textile-shrinkage meetings and headed the 11-man American delegation. Nine suggestions for changes in the standard prepared and submitted by the American Standards Association for the U.S., called "Shrinkage in Laundering of Woven Cotton, Linen, and Cotton-Linen Fabrics," were made by the 33 members from 12 countries on this committee. The U.S. delegation agreed to attempt revisions of the ASTM specifications, federal specifications, and other American standards as would be required by these suggestions.

Wool-Waste Stripping Discussed. The removal of color in the stripping of wool waste poses many problems because of the wide variety of dyes that are in use today, Daniel Frishman of Harris Research Laboratories, Washington, D. C., told "students" at the second annual course in reprocessed fibers at Lowell Textile Institute recently. Indeed, the otherwise desirable trend to more stable dyes of greater fastness properties has made stripping more difficult.

For example, the chrome dyes are frequently more difficult to strip because dye molecules are more firmly bound to the wool, and the dye itself is more stable. However, it has been found that treatment of chrome-dyed materials with chemicals that compete with the wool and dye molecules for the chromium are very effective in assisting the stripping. Such treatments used in conjunction with the protective cross-linking process provide new possibilities for the profitable use of waste wools.

Another problem facing the user of reprocessed or reused wool at present, and one which will become more severe in the future, is the presence of synthetic fibers in blends with wool. Some of the dyes used on synthetic fibers are readily stripped while others pose difficult problems. Indeed, some of the newer synthetics are very difficult to dye, and it appears that they are equally difficult to strip. Severe conditions that are sometimes necessary to strip the synthetics can be extremely damaging to wool. Thus, it becomes even more important in such instances to provide means for the protection of the wool by cross-linking agents, Mr. Frishman concluded.



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(PATENTED)

Shown here, 3-cylinder set, with Peralta Machine. Also available in 2-cylinder and 4-cylinder sets.

All foreign matter entangled in the web as it passes from the doffer is pulverized by the two Peralta Rolls, thereby eliminating this foreign matter from the stock.

BUILT in two sizes, 78¾" and 72¾", this well-known woolen carding machine offers substantially greater production and noticeably improved quality because of inherent design features and operating advantages.

A new 2-cylinder carpet card now in operation in the Duesberg-Bosson Woolen Spinning Co., Jefferson, Mass., is causing great interest.

CATALOG AVAILABLE ON REQUEST

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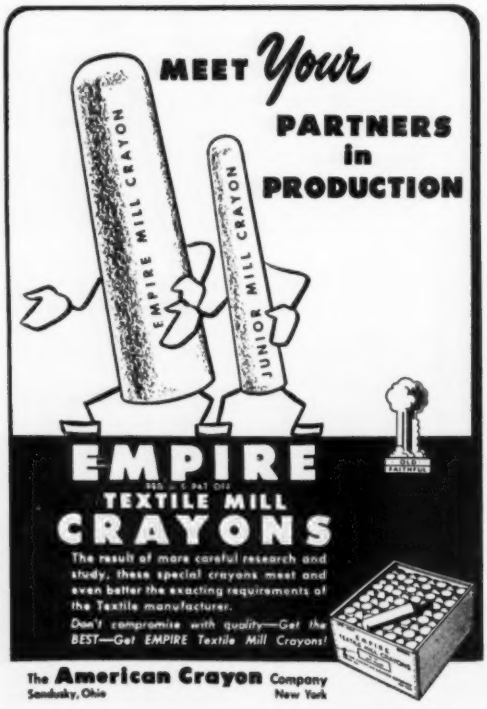
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NEWS ABOUT Suppliers

Equipment Suppliers

Colson Corp., Elyria, Ohio, has appointed Oxford Sales and Service Co., Hartford, Conn., as its franchise distributor for Connecticut. Colson has closed its own office in Hartford and has transferred its sales operations in the state to Oxford.

Duesberg-Bosson of America, Inc., has liquidated its assets in Fitchburg, Mass., with the sale of its machinery, equipment and two plants to a "Chicago syndicate," which took possession on June 30.

The Foxboro Co., Foxboro, Mass., has announced an increase in its training school staff with the appointment of W. H. T. Furry as an associate director. Mr. Furry, formerly training coordinator for Atlantic Refining Co., Philadelphia, has taught courses in instrumentation for Pennsylvania State College and the Philadelphia Section of the Instrument Society of America.

Greensboro Loom Reed Co., Greensboro, N. C., is adding a one-story, 4,000 sq. ft. area atop its present building to house expanded manufacturing operations.

Laconia Needle Co., Laconia, N. H., has announced the resignation of Hobart D. Sanborn as vice president and general manager. George Parsons, treasurer, will take over his duties temporarily.

Link-Belt Co., Chicago, Ill., has named James H. Oakes, former sales manager for enclosed drives, as sales manager for the Philadelphia plant, and Byron K. Hartman, former assistant sales manager at Philadelphia, as sales manager for the new Colmar plant, which will begin manufacturing operations later this year in Colmar, Pa.

Macbeth Sales Corp., subsidiary of the Macbeth Corp., Newburgh, N. Y., has been appointed sales representative in the U. S. and Canada for the Nickerson-Hunter Cotton Colorimeter. The company will continue to sell the Macbeth Cotton Examolite.

National Ring Traveler Co., Pawtucket, R. I., has moved L. E. Taylor to its office and distributing depot at Charlotte, N. C., to become Southern manager.

Norma-Hoffman Bearings Co., Stamford, Conn., has named Robert L. Miller, 28 years with the company, vice president in charge of sales.

Product Sales, Inc., Whitman, Mass., has employed Wil-

WM. F. LEINWEBER, JR. (left) and R. E. KING (right) have been assigned new duties with W. D. Dodenhoff Co., Greenville, S. C. The former is now vice president in charge of engineering; the latter is chief engineer of product design and manufacturing.

News About **SUPPLIERS** (Continued)

HUGH CASH (left) and JOHN M. NEUFFER (right) have recently joined Steel Heddle Mfg. Co. They will work out of the Greenville, S. C. office.

liam E. Conlon, until recently with H & B American Machine Co., as sales manager.

Union Special Machine Co., Chicago, Ill., has appointed a new representative, Fred S. Booth, to serve the western Pennsylvania and eastern Ohio territory formerly covered by Ray Hinton. O. J. Fleming was elected a vice president of the company.

Universal Winding Co., Providence, R. I., has appointed Harris H. Bucklin, Jr., to succeed R. M. Mauldin as its Charlotte, N. C., sales representative. Mr. Mauldin retired June 30 because of illness.

Watson & Desmond, Charlotte, N. C., has appointed Sutton M. Ebert as its representative in Pennsylvania, New Jersey, and Maryland. Mr. Ebert had represented the James H. Billington Co., of Philadelphia, in that territory.

Watson-Williams Manufacturing Co., Millbury, Mass., has employed Raymond A. Norman of Greenville, S. C., former assistant treasurer of the Southern Shuttle Div., Steel Heddle Manufacturing Co. He will serve as assistant superintendent of the company and will be associated with Harold E. Goff, superintendent, and Donald R. Scott, assistant sales manager.

Emil V. Wilson Co., Greenville, S. C., has contracted to rebuild looms for Lanett Mills, West Point Mfg. Co., West Point, Ga.; Dwight Mfg. Co., Cone Mills, Alabama City, Ala.; Springs Mills, Lancaster, S. C.; Jorge Facusse, Tegucigalpa, Honduras; Hilan Deria, Salvadorena, El Salvador; and Fabrica De Tenidas Obregon, Barranquilla, Colombia.

Chemical & Yarn Suppliers

Allied Chemical & Dye Corp., Solvay Process Div., has been consolidated from Solvay Sales and Solvay Process divisions. The new office will be at 61 Broadway, New York 6, N. Y.

American Viscose Corp., New York, N. Y., has moved its public relations and publicity department to the company's Philadelphia headquarters. In the new location, Harry L. Dalton, vice president of sales and public relations, will be assisted by C. Stuart Brown, who had formerly managed the program of recruiting professional and technical personnel. The advertising department will remain in New York under the supervision of Charles W. Rice, Jr.

Apex Chemical Co., Inc., New York, N. Y., has added Edward A. Chevrette, formerly with Surpass Chemical Co., to its staff. A specialist in the processing of tubular knit goods, Mr. Chevrette was formerly employed by Brown Knitting Co. and Susquehanna Mills.

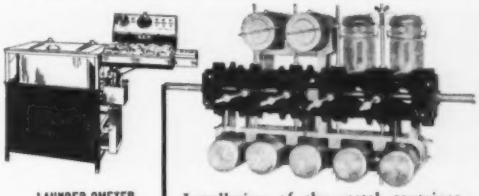
Aquex Development & Sales Corp., Whippany, N. J., has named Moreland Chemical Co., Inc., Spartanburg, S. C., district representative for the sales of its new resins.

Speed up your Launder-Ometer to 10 TIMES its present testing rate with . . .

Atlas Metal Containers

Give the same color loss test in 1/10 the time required for standard tests in glass jars.

The accelerated action of the steel containers is due to the shape and size of these metal cylinders which are 3½" diameter and 8" long and when mounted on the adaptors in the Launder-Ometer produce a speeded up action that obtains the same results as the standard glass jars in only 1/10th the time.

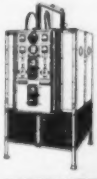


LAUNDER-OMETER

Installation of the metal container adaptors is simple and easy. You do not need to convert all of your containers to metal cylinders unless desired. Adaptors are available for two, or five metal containers. Twenty samples can be tested simultaneously using metal containers, glass jars, or combinations of both.

FADE-OMETER

With this simple adaptor you can transform your present Launder-Ometer into a high speed machine that will produce color loss equivalent to 5 commercial launderings in just 45 minutes. This is the new AATCC washfastness test.



WEATHER-OMETER

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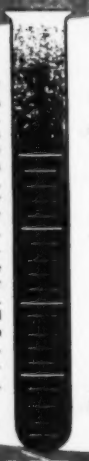
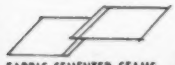


TEXTILES
SURFACE COATINGS

RAINCOATS AWNINGS

TENTS CARPETS NON-SKID RUGS

FABRIC LAMINATIONS



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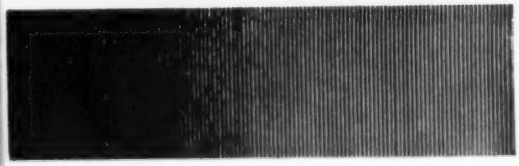
Distributors of Natural Rubber Latex * Manufacturers of Special Compounds of Synthetic or Natural Rubber Latices to meet your needs



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News About SUPPLIERS (Continued)

Arnold, Hoffman & Co., Inc., Providence, R. I., has appointed William F. Kennady its representative in the Georgia-Tennessee area. For the past year, Mr. Kennady has been in charge of the company's sales-service laboratory in Charlotte and prior to that was with National Aniline Co. in its Charlotte laboratory for six years.

American Cyanamid Co., Calco Chemical Div., Bound Brook, N. J., has moved its Boston, Mass., sales office, laboratories, and warehouse to 1055 Commonwealth Ave. G. W. Busch has been made sales representative in the Chicago area.

Celanese Corp. of America, New York, N. Y., has established a new organization, Celanese Central, S. A., to provide closer liaison with the activities of foreign affiliates of the company in all countries except Canada. Kenneth G. Donald has been named president of the new organization. The parent company is resuming its expansion program at the Celriver plant with the arrival of adequate materials and equipment. The program was deferred three months ago when there was a marked slow-down in deliveries of construction materials. Martin W. Glynn and Bartlett Guild have been appointed district sales managers of the Philadelphia and Boston Districts, respectively, of the Textile Division of Celanese.

Chemstrand Corp., Decatur, Ala., has made seven appointments, effective immediately, to the research and development department. They are: Drs. Madison L. Marshall, Andrew I. Smith, Edgar D. Smith, and Robert L. Sublett; and Edwin W. Lard, Leon Hecht, Jr., and Albert H. Bruner. David B. Renegar has been appointed plant safety engineer and Harry E. Anschutz, Jr., Acrilan spinning supervisor. Laurence C. Holt was named Acrilan manufacturing superintendent.

Hart Products Corp., New York, N. Y., has appointed Dr. Sidney Cohen research and development chemist. Dr. Cohen has had 10 years of experience in the fields of vinyl polymerization, detergents, gas fading inhibitors, optical

W. HERSEY HOWARD has been appointed to the Midwestern area sales staff of Hilton-Davis Chemical Co. He had been with Ciba Co., Inc., since 1938.

bleaches, resin finishes, and dulling agents. He will direct investigations in Orlon and Dacron dyeing assistants, antistatic agents, and dye-fixatives.

Hilton-Davis Chemical Co. Div., Sterling Drug Inc., Cincinnati, Ohio, has named Theodore A. Langstroth associate director of research of the pigments division. Mr. Langstroth heads laboratory research activities, including the pilot plant laboratory. He will also help coordinate activities between the research and technical sales staffs.

Libbey-Owens-Ford Glass Co., Toledo, Ohio, has promoted J. M. Johns to general manager of the Fiber Glass Div. George J. Hannes has been made administrative assistant to the technical manager of the division at Parkersburg, W. Va.

National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y., plans to build a new chemical plant to manufacture nitrobenzene and analine by a new continuous process on a site south of Moundsville, W. Va. The site is adjacent to a new plant of the Solvay Process Div., now in the course of construction, which will manufacture chlorine and caustic soda using local salt deposits. The new catalytic process for aniline will use hydrogen generated in the Solvay operation. Construction of National's new plant will start at an early date with completion projected in 1953. Because of the plant's importance to the defense effort, the Defense Production Adminis-

CRAWFORD C. MADEIRA, JR. (left) and JOHN GAY (right) have been appointed to the sales staff of Chemstrand Corp.

tration has awarded a Certificate of Necessity covering 60% of the cost of the facilities, estimated to exceed $2,300,000.

Pittsburgh Coke & Chemical Co., Pittsburgh, Pa., has announced four appointments to the staff of its new Fine Chemicals Div. They are: Joseph S. Milazzo, assistant plant superintendent in charge of dyestuff production; Heinz Gruen, assistant supervisor of fine-chemical process development; Henry H. Richmond, assistant supervisor of fine-chemical research; and Albert E. Medas, appointed chief colorist, to supervise dye standardization.

Tennessee Eastman Co., Kingsport, Tenn., recently dedicated its new sales-service laboratory building at an open house held for the Northeast Tennessee Section of the A.C.S.

Other Services

Oscar Kohorn & Co. Ltd., New York, N. Y., has retained Mr. William O. Holmes, New York textile consultant and fabrics stylist, to spent several months in Chile in connection with the promotion, development, and styling of filament- and spun-rayon fabrics. Mr. Holmes will make his headquarters with Comtec, S. A., in Santiago, Chile, a Kohorn affiliate and distributor for the rayon plant constructed and operated by the Kohorn organization in that country.

The Textile Hall Corp., Greenville, S. C., re-elected all officers and directors at the annual meeting of the board of directors. The officers are W. G. Sirrine, chairman of the board; James H. Woodside, president and treasurer; W. W. Carter, vice president; and Miss Bertha Green, secretary. All space for the 17th Biennial Southern Textile Exposition to be held in Textile Hall October 6-11 has been taken. This year's exposition will be the largest ever held. Approximately 10,000 sq. ft. of space have been added since the last show through the construction of a new brick building on the property on W. Washington St. Directors of the corporation are John W. Arrington, Jr., Sydney Bruce, W. W. Carter, Thurmond Chatham, Donald Comer, Hermon Cone, Robert I. Dalton, L. C. Hammett, C. E. Hatch, Edwin Howard, E. S. McKissick, W. S. Montgomery, W. W. Pate, Ernest Patton, W. G. Sirrine, F. W. Symmes, Harold R. Turner, George M. Wright, and James H. Woodside.

United States Testing Co., Hoboken, N. J., has added a new product testing service. The most recent addition, headed by psychologist Dr. Dean Foster, is the Psychometric Laboratory, which will do psychological evaluation of consumer goods and services.

Worth Street, Inc., 40 Worth Street, New York, N. Y., has elected Alonzo F. Bonsal of Joshua L. Baily & Co., Inc., and Stanley Phillips of Cannon Mills, Inc., vice presidents of the organization. William P. Wright, Jr., of Greenwood Mills, Inc., was elected secretary and a director.

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No. 1. Left-hand Singer-type Looper.
No. 2. Regular Left-hand Dinsmore Looper.
No. 3. Regular Right-hand Singer Looper.
No. 4. A long-throw Looper used on some types of machines.
No. 5. Standard Dinsmore Looper. Its special design makes it superior to any other Looper manufactured.

The Hook or Looper is the most important part of a Chainstitch Sewing Machine. Our looper is made from high-grade steel. A slight deviation in *the shape*, either at the heel or point, will cause much trouble.

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SALES PLANNING and PROGRAMMING
SALES and OFFICE STANDARD PRACTICE INSTRUCTIONS
ORGANIZATION ANALYSIS PERSONNEL APPRAISAL

These services will be under the direction of Mr. Peter M. Fekula now affiliated with Barnes Textile Associates, Inc. They will complement our established consulting activities in the fields of general engineering, industrial engineering, cost and quality control, materials handling and industrial relations.

Mr. Fekula has had broad experience in a variety of industries in both consulting and operating capacities. Recently he completed an outstanding project for a well-known textile company which brought about close coordination of production and sales. He has been able to apply to textiles many of the principles which have proved so successful in the automotive and aircraft industries.

We will be pleased to give further information about the services rendered by our new Peter M. Fekula Division, as well as by our other departments.

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NEWS ABOUT Mills

Cotton Mills

Adamo Co., Los Angeles, Calif., has acquired the Coast Cotton Mill at Orange, Calif. Associated with Adamo in this purchase is E. T. Combs, who will be in charge. Production of 140,000 lb. of cotton yarn per month will be used by Adamo in its cotton-rug operations.

American Thread Co. expects to begin operations this fall in its new plant at Sevier, N. C. The new plant will be one-story and will contain nearly 600,000 sq. ft. of floor space. Houses are being erected on a site near the plant for key personnel. Harvey Eastman has been appointed general manager of the plant.

Berkeley Mills, Inc., Balfour, N. C., recently completed a modernization and expansion program, including a large addition. The mill now has 52,272 spindles and 1,000 looms in operation.

Calais Lace Works, Inc., Pawtucket, R. I., has been chartered with Amos L. Lachapelle and Eileen Sadlier, both of Pawtucket, and Peter J. McKeon, of Valley Falls, R. I., as incorporators. The company will manufacture nets and netting.

Consolidated Textiles, Inc., Lynchburg, Va., plans additions estimated to cost about $125,000.

Commerce Mfg. Co., Inc., Commerce, Ga., has completed the installation of air conditioning throughout the plant. Sixteen units, each of which can be individually controlled, have been installed.

Greenwood Mills, Greenwood, S. C., is progressing rapidly with its new $6,000,000 Durst Mill. The company's construction department, which is headed by T. L. Hughston, is in charge of the project. About 1,200 looms will be installed.

W. A. Handley Mfg. Co., Roanoke, Ala., has completed a community center for its employees and their families consisting of a building and playground. The building contains an auditorium with a stage, rest rooms, game rooms, Boy Scout room, two television sets, five radios, etc.

Jordan Mills, Inc., Columbus, Ga., has doubled its capacity for package dyeing and has added new roving equipment and warehouse space. New twisters were also added to raise the output of novelty ratiné yarns.

Kilburn Mills, New Bedford, Mass., is nearing completion of its $2,000,000 mill near Tryon, N. C. Fiske & Carter, Spartanburg, S. C., is the contractor. Plant will be engaged largely in finishing sewing thread for industrial purposes.

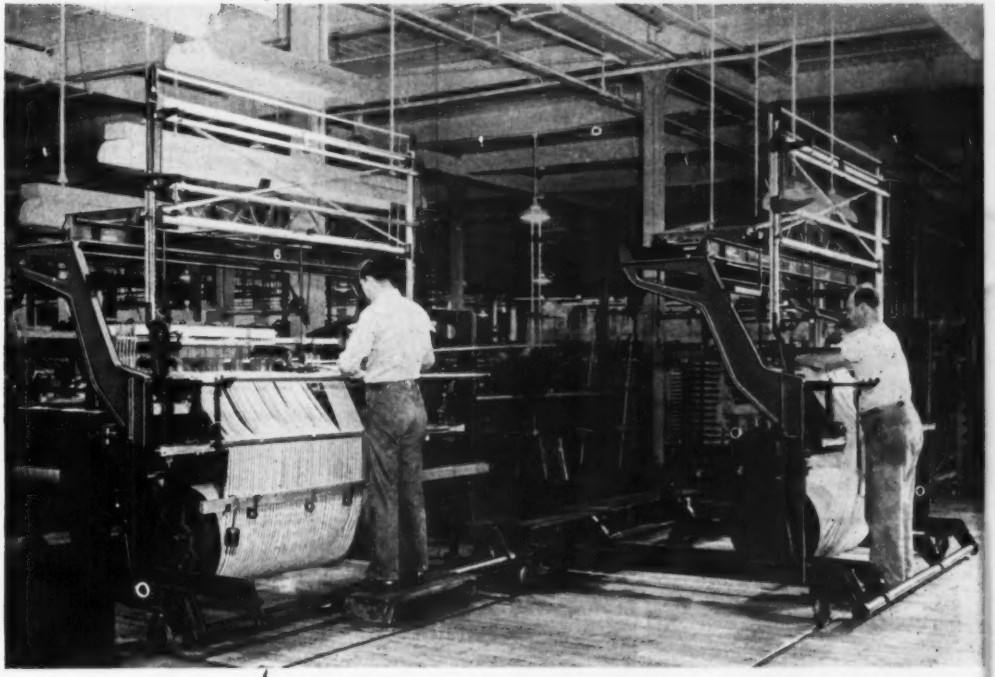
M. Lowenstein & Sons, Inc., New York, N. Y., is completing its new plant at the Orr Mills, Anderson, S. C., for spinning and weaving synthetics and expects to place it in regular service shortly. The mill cost about $2,500,000.

Opelika Mfg. Co., Opelika, Ala., is constructing a new $70,000 addition to its cotton mill at Hawkinsville, Ga. The addition will measure 43x102 ft., consisting of two stories and basement. It will house the cloth warehouse, cloth room, and future sewing room. The work is expected to be completed in four months.

Postex Cotton Mills, Post, Tex., will erect additions consisting of two one-story buildings, 67x100 ft., and 90x135 ft., which will be used for expansion in the bleachery and weave room. The cost is reported at about $125,000, exclusive of equipment.

Progress Ribbon Mill Co. Ltd., Montreal, Que., recently started operations on cotton, rayon, and nylon narrow fab-

The use of **BARBER-COLMAN WARP DRAWING MACHINES** substantially reduces warp preparation costs for mills requiring constant changes of pattern...



The above illustration shows one of several Barber-Colman Warp Drawing Machines in operation at the Schoolfield Plant of the Dan River Mills, Danville, Virginia.

At Dan River, a large variety of striped cotton warps are drawn daily. The use of Barber-Colman Warp Drawing Machines substantially reduces warp preparation costs for mills requiring constant changes of pattern. A single machine operated by an experienced operator and helper provided with well-slashed warps will obtain production equivalent to seven or eight Drawing-In Hands.

DATA

Warps per eight hour shift: 8 — 11
35/1 Cotton 2884 ends per warp, 72 ends per inch, 36-1/2 dent
Reed Straight Draw, 6 Harness — 4 Banks of Drop Wires, 160 PPM

The Warp threads are drawn through Drop Wires, keyhole-type Heddles and the Reed in one operation from any predetermined draft. If you are not already equipped with keyhole-type Heddles, now would be the time to change as these are necessary equipment in order to operate a Barber-Colman Warp Drawing Machine.

AUTOMATIC SPOOLERS
SUPER-SPEED WARPERS
WARP TYING MACHINES
WARP DRAWING MACHINES

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News About **MILLS** (Continued)

rics. Twenty-five Sulzer looms are in operation, and 35 more will be installed and producing before Nov. 1. Also installed were a Crowther high-speed warping creel with double-sided warper, a Crowther 12-head automatic quiller, a calendering machine, a spooler, and a blocking machine.

Rosemont Co., Spartanburg, S. C., has been granted a South Carolina charter to manufacture and deal in textile products. It has a capital stock of $100,000 and is headed by W. S. Montgomery.

San Quentin, Calif.—The California legislature has set aside $1,500,000 for the operation of a cotton mill at San Quentin prison. Robert & Co Associates, Atlanta, Ga., has been employed to design a plant for an existing building. The mill will produce denims and related goods that will be sold to other penal institutions.

Alexander Smith, Inc., has moved into its new executive offices at White Plains, N. Y.

Smitherman Cotton Mills, Inc., Troy, N. C., which has completed a modernization program including the installation of 150 additional looms, has started operation on a three-shift basis. The plant now has 600 looms. Modernization also included the installation of 8,000 Whitin super-draft spindles, making a total of 24,000; fluorescent strip lighting; new floors; and a new insulated roof. Plant now is producing 80x80 print cloth.

Textile Mfg. Co. Ltd., Toronto, Ont., has let a contract to replace its present wood exterior with brick on concrete-block foundation. The general contractor is S. Dinino, 146 Clinton St., Toronto. Gordon Bazely, 193 Forest Hill Road, Forest Hill, is the architect.

United States Rubber Co., New York.—Robert C. Harrington, production manager of the Textile Div., expects to move the production management group from the company's New York office to Winnsboro, S. C., where the company's largest textile plant is located.

Woods Mfg. Co. Ltd., spent $1,037,219 during 1951 on an expansion program at its Empire Cotton Div., Welland, Ont.

Woodside Mills, Inc., Greenville, S. C., has completed its $13,000,000 long-range renovation program.

Woolen and Worsted Mills

American Woolen Co., New York, N. Y., has purchased a building at Tifton, Ga., that will be converted to wool-cloth manufacture at a cost of $175,000.

Clayton Carpet Mills, Spartanburg, S. C., has been granted a South Carolina charter with a capital stock of $100,000 to manufacture rugs and floor coverings. Lewis W. Clayton is the president.

Dunn Woolen Co., Martinsburg, W. Va., has reopened after a 6-mo. shutdown. The mill has a government order for 150,000 Army blankets that will keep the plant running for about 5 mo.

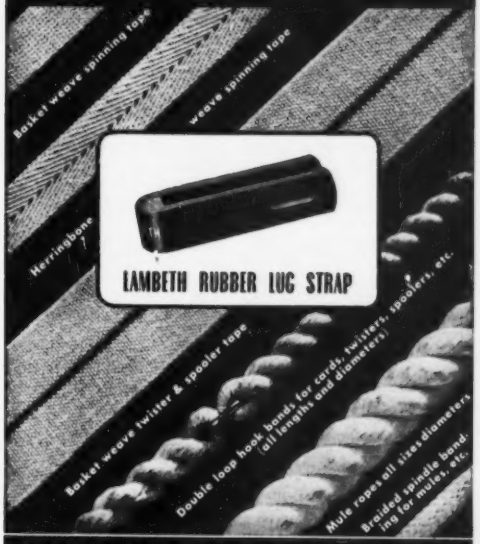
Goodall-Sanford, Inc., Sanford, Me., has had representatives in the South inspecting mill sites.

Mattawin Textiles Ltd., Grand'Mere, Que., a subsidiary of Canadian Cottons, Ltd., Montreal, has almost completed its new plant. Some machinery for production of blended yarns is already in operation. The machinery was purchased from Reiter and Platt Bros. T. R. Hastings is the manager of the plant in Grand'Mere and is also in charge of the St. Croix Mill, Milltown, N. B.

New Fairfield, Conn.—Mrs. Abbie J. Blum, 891 Third Ave., New York, N. Y., who is operating a hand-weaving plant, has purchased a two-story building at New Fairfield that will be converted into a weaving mill.

Pacific Mills, Worsted Div., New York, N. Y., is adding lines of blended fabrics to its

LAMBETH PRODUCTS
FOR SPINNING, TWISTING, SPOOLING, WEAVING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Weave spinning tape
Herringbone
LAMBETH RUBBER LUG STRAP
Basket weave twister & spooler tape
Double loop hook bands for cards, twisters, spoolers, etc. (all lengths and diameters)
Mule ropes all sizes diameters
Braided spindle bands for mules, etc.

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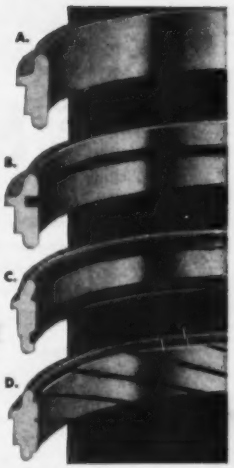
Plants at New Bedford, Mass. and Kings Mountain, N. C.

GREASE RINGS



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DIAMOND FINISH
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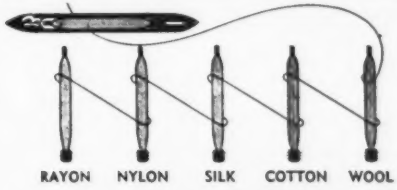

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For all types of yarns, for best loom efficiency and less seconds. New Zealand brown or gray o'possum—muskrat—sheepskin—in any form.

Strips of any width or length, or in whole skins, sheared or unsheared. Prompt Delivery.

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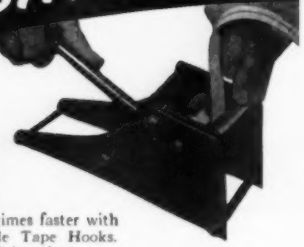
10 TIMES FASTER THAN STITCHING!

SPINDLE TAPE LACING EQUIPMENT



Lace spindle tapes 10 times faster with Clipper No. 25 Spindle Tape Hooks. Tapes can be prepared in advance so frame is shut down only long enough to place new tape on the pulleys and join ends with connecting pin. Tapes run true—last longer—run smoother—require less tension—VIBRATION IS ELIMINATED

CONDENSER TAPE LACING EQUIPMENT

Lace condenser tapes with Clipper No. 25 Condenser Tape Hooks. Clipper laced tapes, prepared in advance, can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving.

CLIPPER BELT LACER COMPANY, GRAND RAPIDS 2, MICHIGAN

Clipper BELT LACING EQUIPMENT UL

News About **MILLS** (Continued)

women's wear, featuring Orlonwool, Vicara-wool, and Vicara-nylon-wool.

Peerless Textiles, Inc., Cleveland, Tenn., has purchased a tract of land in Gilmer County for a future industrial development. The property is located south of Ellijay.

Salisbury Textiles, Inc., Northboro, Mass., which was organized on the site of the former Northboro Woolen Mills, is now in operation.

M. T. Stevens & Sons Co., North Andover, Mass., has sold its Pentucket Mill property.

Synthetics Mills

Consolidated Textiles Ltd., St. Hyacinthe, Que., recently installed 72 65-in. Draper bobbin-changing automatic looms in its new plant in St. Hyacinthe. The company also operates 256 Crompton & Knowles box looms and additional Drapers. The cost of equipment and new building was $900,000.

Aberfoyle Mfg. Co., Philadelphia, Pa., plans an immediate expansion of its synthetic-yarns division.

Columbus Textiles Ltd., Three Rivers, Que., is installing opening, carding, and spinning machinery for cotton and synthetic fibers in its new 20,000-sq. ft. plant. Owner and manager is Mrs. Isse Hofman, formerly of Asch, Czechoslovakia. Another building, 300x66 ft., similar to the first, will be built this year.

Frank Ix & Sons, Charlottesville, Va., has changed its maximum authorized capital stock from $500,000 preferred, 580 shares class B common, and 110 shares class A common to $500,000 preferred, 646 shares of class B common and 44 shares class A common, according to a recent amendment to its charter.

Reeves Bros., Spartanburg, S. C., has completed the installation of 100 XP 50-in. Draper looms at its Woodruff Mills plant. The estimated cost was $150,000. Installation of new winders and Abbott quillers is under way at a cost of approximately $65,000.

South Boston, Va.—A nylon throwing mill, employing 400 persons, is expected to begin operation here in the near future, according to the Halifax Industrial Board. Nylon will be processed for use in hosiery.

Textron Southern, Inc., Anderson, S. C., has completed the purchase of Peerless Co., Inc., Belton, S. C. Peerless is a new plant with 480 Draper looms producing rayon. Textron will add 80 more looms. Textron Southern also will soon begin full-scale operations in its plant at Honea Path, S. C.. Textron Southern, which purchased the property from Westover Mills with 360 looms installed, has added more until 600 are now in place. B. W. McKenzie has been named superintendent of the plant.

Visking Corp., North Little Rock, Ark., has set aside $750,000 for use in research next year.

Wyoming Textile Co., Wilkes-Barre, Pa., is reported to be seeking a Southern building in which to establish a plant. The concern weaves synthetic-fiber fabrics.

Knitting Mills

Berkshire Knitting Mills, Reading, Pa., is working on the development of 60-gauge, 15-den. Kantrun full-fashioned stockings.

B. N. B. Hosiery Co., operating a mill at Sinking Spring, near Reading, Pa., has given notice of intention to increase its capital stock from $7,500 to $25,000.

Crusader Hosiery Mills, Inc., Mount Airy, N. C., has received a state charter to manufacture hosiery. The authorized capital is $100,000. Incorporators are Clinton Childress, of Mt. Airy; Reuben Mayer and William Stein, both of New York.

Dawson Hosiery, Inc., Dawson, Ga., began operations re-

News About **MILLS** (Continued)

cently. Six knitting machines have been installed in the air-conditioned building. James G. Wright is the company head.

Debonaire Hosiery Mills, Inc., New York, N. Y., is enlarging its plant in Chestertown, Md., and is installing new equipment. The plant will have six 60-gauge and eight 51-gauge machines.

Dobson, S. C.—A new plant nearing completion outside Dobson will be leased to Washington Mills Co., Winston-Salem, N. C. Men's and boys' lightweight underwear will be manufactured.

Eagle Knitting Mills, Milwaukee, Wis., has placed in operation a 1,000-bobbin circular-knitting machine for producing knit cloth of many multicolor patterns. The machine is said to perform wrap-type knitting.

E-Z Mills, Inc., Bennington, Vt., will consolidate its knitting and sewing operations at its Cartersville, Ga., mill.

Ferguson Atlantic Underwear Ltd., a subsidiary of Apparel Factors Ltd., Montreal, Que., is erecting a third addition to its mill at Three Rivers, Que., which will measure 200x64 ft. The cost is about $100,000. The architect is Wood & Langston, Westmount, Montreal. The general contract was let to G. A. Gruninger & Fils, Trois Rivieres, Que.

Gurney Mfg. Co., Prattville, Ala., is installing four new knitting machines.

P. H. Hanes Knitting Co., Winston-Salem, N. C., is planning a branch plant in Sparta, N. C. If finally decided upon, the plant will be of masonry construction and will represent an investment of approximately $500,000.

Harrill Hosiery Mill, Rutherfordton, N. C., is being established by Andres Harrill and associates. Those associated with Mr. Harrill include Gordon Hollar, Charlotte, N. C., and J. J. Immerman, Paterson, N. J. Mr. Hollar will manage the mill, which will contain four 30-section, 51-gauge full-fashioned hosiery-knitting machines.

Harriss & Covington Hosiery Mill, Inc., High Point, N. C., is constructing a brick, steel, and concrete addition for expansion of its finishing and shipping departments.

Hoover Hosiery Co., Concord, N. C., is engaged in an expansion and modernization program that is estimated to cost $500,000.

Jefferson Mfg. Co., Martinsburg, W. Va., a recently organized concern, has begun operations in the former Berkeley Woolen Co. building. The plant will manufacture jersey-knit underwear.

Henry Kline Knitting Co., Allentown, Pa., has started operations at 1128 North Catasauqua St. with 25 employees working on three shifts. Modern machinery has been installed to manufacture polo shirts and sweaters.

Ladd Hosiery Mills, Inc., has taken over a plant in Hillville, Va., to be devoted exclusively to production of non-run hosiery. The new mill is among the first to turn out pinpoint non-runs of 60-gauge, 15-den. construction. The company will also manufacture 51-gauge, 15-den. and 45-gauge, 30-den. stockings. Machines are being installed.

Lenoir Hosiery Mills, Lenoir, N. C., has begun construction of a two-story building to house additional machinery. It is expected to be ready for occupancy in September. The building and machinery will represent an outlay of approximately $130,000. Two new machines for the manufacture of full-fashined 60-gauge nylon hosiery have been purchased. Herman Sipe Co., Conover, N. C., is the contractor.

E. Richard Meinig Co., Inc., Reading, Pa., has awarded the contract for steel and electrical installations to cost $35,000 to General Engineering Co., Inc.

Ontario Hosiery Mfg. Co. Lt., Toronto, Ont., has been granted a charter by the Ontario government to produce men's hosiery. The company has a capital of $200,000.

It's New!

- it's different
- it's an "all-use" vinyl primer
- it virtually eliminates surface preparation
- it brushes easily — sprays beautifully
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News About MILLS (Continued)

Dyeing and Finishing Plants

American Dyeing Corp., and **Bellefont Dyeing Corp.**, Rockville, Conn., have completed an extensive modernization program, including a new testing laboratory occupying 2,200 sq. ft.

Blackwood Morton & Sons (Canada) Ltd., St. Therese, Que., is planning to build a one-story addition to its plant on St. Therese Highway, to be used as a dyehouse. It will be 28x63 ft., of masonry construction with reinforced-concrete foundation.

Central Yarn & Dyeing Co., Gastonia, N. C., has launched a $250,000 expansion program to meet its demand for package dyeing of synthetic yarns. New stainless-steel high-pressure dyeing machines have been installed. The expansion program includes a new laboratory under the direction of Herbert Girard, director of research and development.

Covington Fabrics Corp., New York, N. Y., will undertake its first commercial roller-printing of Fiberglas drapery materials. Standard intaglio printing from copper rolls will be done.

Lanett Bleachery & Dye Works, Lanett, Ala., has let the general contract to A. K. Adams Co., Atlanta, Ga., for two new additions to its mill, reported to cost approximately $475,000 with equipment. Robert & Co. Associates, Atlanta, is the architect and engineer. The project has been approved by the National Production Authority.

Modern-Central Dyers & Finishers, Inc., Paterson, N. J., is the new name, following reorganization, of a plant formerly known as Modern-Central Dyeing & Finishing Co.

Naumkeag Steam Cotton Co. will consolidate its finishing operations at Whitney, S. C. Danvers Bleachery equipment will be moved to Whitney from Peabody, Mass. This move cancels the former plan to transfer Danvers Bleachery operations to Pequot Mills at Salem, Mass. The extension of a new $2,300,000 plant at Whitney will be necessary, as this move will treble Naumkeag operations there.

Palisades Piece Dye Works, North Bergen, N. J., is moving to Rhode Island and will be in operation soon in a portion of the former Peace Dale Mill in South Kingston, R. I.

Rainbow Dyeing Corp., Brooklyn, N. Y., has leased a one-story building at 76 Bartlett St.

Textron Southern will convert the mill now under construction at Williamston, S. C., to larger finishing operations if the City of Williamston will supply more water. The city council has been considering a proposal to install $20,000 in additional waterworks equipment to bring output to 300,000 gal. daily.

United Piece Dye Works, Lodi, N. J., will soon begin regular production at its new branch mill at Charleston, S. C. The plant has about 125,000 sq. ft. of floor space and will have a rated output for dyeing 60,000 yd. of synthetic fabrics per day.

Foreign Mills

Asani-Silke, Postgiro Konto 13564, Viborg, Denmark, is building a new plant containing 45,000 sq. ft. of floor space, in which operations from rayon winding and tricot knitting through dyeing, finishing, and garment making will be carried out. The company has purchased 18 German tricot machines and a large number of American sewing machines.

Marquillas Limitada, Medellin, Colombia, has been recently established with 11 jacquard looms of English make in operation. The capital is equivalent to $120,000. The founder of the firm is Joseph Alan Wightman, an Englishman; the manager is Emilio Fernandez Botero, a Colombian engineer. Technicians are Vaclar Palka and Juan Hanke.

NEWS ABOUT Men

A. F. Anderson has been named manager of the insurance department of Dominion Textile Co. Ltd., Montreal, Que. He was previously treasurer and a director of Paton Mfg. Co. Ltd., Montreal. He will continue as a director at Paton.

Jack Barry, director of public relations for American Woolen Co., has been appointed to the newly created post of director of personnel and public relations. His office will be in Boston, Mass.

Fred J. Bendall has retired after 54 years with Cheney Bros., Manchester, Conn., where he most recently served as yarn and fiber purchaser.

Jack Berman has been elected an assistant vice president of M. Lowenstein & Sons, Inc., New York, N. Y. **Jerry Traub,** retired president of Traub-Lyons-Oppenheim, Inc., was also named an assistant vice president.

T. H. Bierce has resigned as secretary-treasurer of Dan River Mills, Danville, Va. **R. B. Newton,** president, will assume the duties of treasurer and **Robert P. Lyn,** assistant general counsel, will assume the duties of secretary.

George W. Britt has been promoted from assistant superintendent to superintendent of Red Bank Mills, Lexington, S. C. He succeeds **G. L. Davis,** who has resigned.

E. O. Buhlmann, resident manager of Globe Mills of American Woolen Co., Utica, N. Y., has resigned to become the manager of the new worsted mill of American Yarn & Processing Co., Mount Holly, N. C.

C. A. Bullard has been promoted from overseer of spinning to superintendent at Quitman Mills, Inc., Quitman, Ga. **Richard Waters** has been promoted from night overseer to general overseer of spinning. **J. D. Adkins** has been promoted from overhauler to night overseer.

PAUL GROOVER has been elected to the newly-created position of executive vice president of Pacific Mills, Boston, Mass. Mr. Groover has been associated with the company's manufacturing operations at Lyman, S. C.

Alex Campbell has become overseer of napping and finishing at Morschner Dye Works, Inc., Newton Upper Falls, Mass.

Albert Cartier has become overseer of night weaving for Guerin Mills, Inc., Montrose Div., Woonsocket, R. I.

George M. Chapell, agent at the Pittsfield, Mass., plant of Wyandotte Worsted Co., has been named assistant general manager of the company. **E. F. McGowan,** superintendent at the Wyandotte plant in Rochester, N. H., succeeds him as agent at Pittsfield. **John McGowen,** formerly assistant general manager, is now general manager.

Gerard Chapin has retired as general superintendent of the Lyman Div. of Pacific Mills, Spartanburg, S. C. He will be succeeded by **J. O. Lindsay,** former plant superintendent.

William E. Chipman, secretary and assistant treasurer of Charles Chipman Sons Co., Inc., New York, N. Y., was recently elected to the firm's board of directors. He succeeds **Henry G. Morpurgo,** retired.

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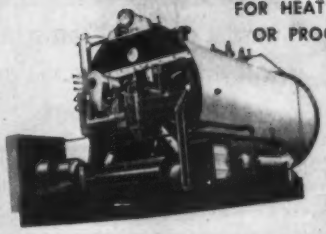

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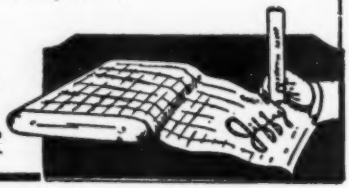

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News About MEN

(Continued)

BENJAMIN P. ANDERSON and ROBERT QUACKENBUSH have joined Wellington Sears Co., New York, N. Y., where they will serve on the quality-control staff. Mr. Anderson was formerly with Don River Mills and the New York Quartermaster Procurement Agency. Mr. Quackenbush was formerly with Collins & Aikman and William Whitman Co.

Andrew E. Collins has been named plant supervisor at the Bishopville Finishing Co., Bishopville, S. C.

William Cummings, former overseer of finishing at the Sawyer Mills of American Woolen Co., Dover, N. H., has been transferred to the company's plant at Raleigh, N. C.

Frank Diedrich has been appointed general manager of the finishing division of Powdrell & Alexander, Inc., Danielson, Conn. **Bernard H. Schuessler** has been named assistant to the president.

William Dobbins, Nashua, N. H., who has been the controller for Northern mill operations of Textron, Inc., has become controller for the Engineering & Research Corp., Riverdale, Md.

J. Dolphin has retired as vice president in charge of production at Canadian Cottons Ltd., Montreal, Que. His duties have been divided as follows: **J. G. Sutherland** has been made new division manager of the mills at Cornwall and Stormont, with headquarters in Montreal; **James Dolphin** has become division manager in charge of the Ontario Mill, Hamilton, the Gibson Mill, Marysville, N. B., and the Cornwall & York Cotton Mills, St. John, N. B.; **V. H. Bruneau** is now division manager of the St. Croix Mill, Milltown, N. B., and Mattawain Textiles Ltd., Grand'Mere, Que.

Edward L. Donegan has been promoted to superintendent of Warrenton Woolen Co., Torrington, Conn. He was formerly assistant superintendent.

W. M. Dutton, assistant superintendent for the past year of Newton Rayon Mills, Newton, N. C., a division of Burlington Mills Corp., has been transferred to the Burlington plant in Franklinton, N. C., where he is now superintendent.

Albert Edge has been named treasurer of Verney Corp. of Canada Ltd., Granby, Que. He will also continue as comptroller. **F. E. Grimshaw** has been named assistant secretary-treasurer and will retain his position as office manager.

Edward Faber has been appointed manager of Gilbertville Mills, Inc., Ware, Mass. Mr. Faber replaces **Ralph McLeod**, who has been reassigned to the main plant at Ware to assist **Alfred Wesslen** in engineering and experimental projects.

Charles W. Frank, formerly assistant purchasing agent, has been named purchasing agent of American Woolen Co., New York, N. Y., to succeed **P. E. Wardwell**, who has retired. **Thomas Furrie** has been named assistant purchasing agent, succeeding Mr. Frank.

Stanley J. Garfinkel has joined the Natona Mills Div. of Native Laces & Textiles, Inc., New York, N. Y., where he will assist in the sales and styling of tricot-knit fabrics for men's wear.

News About **MEN** (Continued)

Noel Garvin, lately at the Franklinton plant of Burlington Mills, has been named assistant superintendent of Newton Rayon Mill, Newton, N. C., also a Burlington affiliate.

O. A. Gratias has been named president and managing director of Canadian Spool Cotton Co., Montreal, Que.

Alfred Greenfield has resigned as superintendent of Arms Textile Mfg. Co., Manchester, N. H.

William A. Griffiths has been appointed director of recreation for Utica & Mohawk Cotton Mills, a division of J. P. Stevens & Co., Inc. His duties will cover Clemson, S. C., and Seneca, S. C., plants.

R. W. Hassett has resigned as overseer of weaving at S. Stroock & Co., Inc., Newburgh, N. Y.

Richard Heidenreich has become assistant to the manager of Dorr Woolen Co., Guild, N. H.

H. T. Hill has become overseer of weaving at Brodnax Mills, Inc., Brodnax, Va.

Chester Hodgson has resigned as overseer of spinning and twisting at Stafford Worsted Co., Stafford Springs, Conn. He has been succeeded by **Roland Simpson.**

Laurence C. Holt, formerly head of operations at Chemstrand Corp. pilot plant at Marcus Hook, Pa., has been appointed Acrilan manufacturing superintendent at Chemstrand plant in Decatur, Ala.

James Houlihan has been placed in charge of the cloth finishing department at Slingsby Mfg. Co., Ltd., Brantford, Ont. He was formerly superintendent of finishing for Artex Woolens, Ltd., Hespler, Ont.

John M. Lalor, founder and head of John M. Lalor & Co., Ltd., Toronto, Ont., recently retired.

Sam Lander has retired as vice president of Textron Southern, Inc., Anderson, S. C. He joined the J. P. Gossett organization in 1906.

Werner W. Lasch has been appointed general manager of Belvidere Hosiery Mills, Inc., Belvidere, N. J., succeeding the late **Harry A. Matthews.** Mr. Lasch was formerly associated with Sheertex Hosiery, Woodbury, N. J., where for the past ten years he was manager and superintendent.

Roy H. Leach, formerly superintendent, is now the general manager of Textile Weavers Ltd., Grand'Mere, Que. **E. R. Tucker**, who was assistant superintendent, is now superintendent of dyeing and finishing, and **B. Jacobsen** has been appointed superintendent of gray goods mill. **W. Hulme**, who was formerly overseer of the dyeing department, is now chief chemist for the entire mill. **Joseph Carroll**, formerly with Dan River Mills, is now overseer of dyeing.

John Leighton has become overseer of finishing at Blackinton Mills, Conestee, S. C.

Lloyd L. Lively has resigned as general manager of Alabama Hosiery Mills, Inc., Decatur, Ala.

W. G. Loon has become the overseer of spinning at Wyandotte Worsted Co., Pittsfield, Mass., succeeding **E. E. Stanley. W. E. Gallagher** has become yarn superintendent.

Frazier D. MacIver, who has been executive vice president of Phoenix Hosiery Co., Milwaukee, Wis., was recently named president, succeeding **Theodore Friedlander, Sr.**, who has become chairman of the board. **John H. O'Toole, Jr.**, has been named a vice president in charge of merchandising and women's hosiery sales. **Richardson E. Brown** was made vice president in charge of the men's division.

Thomas F. Malloy has become overseer of dyeing at Jefferson Woolen Mills, Knoxville, Tenn.

J. H. Maudsley has been appointed manager of Canadian Cottons Ltd., St. Croix Mill, Milltown, N. B. He was previously a senior official of Montreal Cotton Ltd., Valleyfield, Que.

Joseph Mello has succeeded **J. J. Kinsella** as foreman of the

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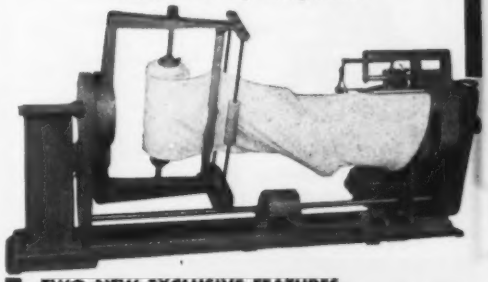

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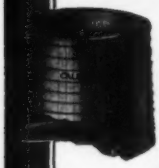

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News About **MEN**

(Continued)

finishing department of Dartmouth Finishing Corp., New Bedford, Mass.

Thomas D. Meriwether has retired as executive vice president of P. H. Hanes Knitting Co., Winston-Salem, N. C. **P. Huber Hanes, Jr.**, formerly vice president in charge of manufacturing, has been named to succeed Mr. Meriwether.

Olin Miller, overseer of winding at Franklin Woolen Mills, Inc., Franklin, Mass., has retired.

S. J. Miller has become assistant superintendent for Holland Mfg. Co., Stroudsburg, Pa.

Charles F. Milward has become overseer of carding at Yantic Woolen Mills, Inc., Yantic, Conn., and **Earl Luddecke** has become boss finisher.

Ernest Morse has been named superintendent of Brunswick Worsted Mills, Inc., Moosup, Conn. **Charles Whelan** has been appointed overseer of finishing for the firm.

Jared J. Mowry, senior vice president and manager of the Hartsville, S. C., plant, has succeeded **Tracy A. Adams** as president of United States Finishing Co., Norwich, Conn. It is understood that this succession is pending later election of a president.

James B. Neel has become overseer of dyeing at the Wanskuck Co. plant at Providence, R. I.

Robert J. Patterson has become assistant superintendent at Vermont Textiles, Inc., North Montpelier, Vt.

Malcolm R. Pitt has retired as assistant general manager of the W. Harris Thurston Div. of Reeves Bros., Inc., New York, N. Y.

Charles Platt has been elected a vice president of Continental Hosiery Corp., a division of Chester H. Roth Co., Inc., New York.

Max D. Poore, head of the quilling, reeling, and package-winding department at American Thread Co., Bristol, Tenn., has been named personnel director of the new American Thread plant under construction at Sevier, N. C.

FLOYD W. HURT has joined the sales staff of the Atlanta office of Southeastern Cottons, Inc., selling agent for Avondale Mills.

Ray Preuss has become overseer of weaving at North Star Woolen Mill Co., Lima, Ohio, succeeding **Thomas Ouger**, resigned.

G. W. Retz, secretary of A. D. Juilliard & Co., New York, N. Y., has retired.

James E. Robison has been succeeded as president of Atlantic Parachute Co., Providence, R. I., by **W. C. Wring.** Mr. Robison has succeeded **Royal Little** as chairman of the board. Mr. Robison will continue as president of Textron Puerto Rico and as executive vice president of Textron, Inc. **James Flack** has succeeded Mr. Robison as president of Textron Mississippi, Inc.

John D. Rollins, formerly superintendent of Gold-Tex Fabrics Corp., Rock Hill, S. C., has rejoined that firm as general manager.

J. E. Sarazin has resigned as overseer of finishing at Bridgewater Woolen Co., West Bridgewater, Vt.

Albert H. Schumacher, vice president and general manager of Lippitt Worsted Mills, a division of Crown Mfg. Co., has assumed the additional duties of general manager of Crown Mfg. Co., Pawtucket, R. I. **Richard Stoehr** has been named assistant to Mr. Schumacher and resident manager of the Pawtucket plant.

News About **MEN** (Continued)

Walter Schwarz has become assistant designer at the Appleton Woolen Mills, Reedsburg, Wis. **Walter Pieplow,** formerly superintendent of Hartford Woolen Co., Hartford, Vt., is now assistant superintendent at Appleton.

James N. Scott, production manager in the lightweight division of Utica Knitting Co., Utica, N. Y., has resigned to become manager at the Straus Knitting Co., St. Paul, Minn.

Gustave G. Staude, vice president and sales manager of Modeltex Hosiery Co., Inc., New York, has resigned.

Richard Steinweg has joined Manchester Knitted Fashions, Inc., New York, as stylist. Mr. Steinweg was previously with Barclay Knitwear.

Harvey Steward has become overseer of finishing for Dexter Mills, Inc., Dexter, Me.

J. W. Shiver has been promoted to overseer of spinning at the Manchester Plant of Callaway Mills, Manchester, Ga. Mr. Shiver was formerly assistant overseer. Other appointments at the Manchester Plant include **Fred McRae,** from assistant overseer of spooling and twisting to overseer of spooling; and **D. Vance Sanders** from spooling room second hand to assistant overseer of spooling and twisting.

Harry Swavely has been transferred from the New York office of Scherr Mills to its plant at Manchester, N. H., where he will take full charge of all operations.

R. J. K. Thompson has become manager of Renfrew Woolen Co., Renfrew, Ont.

OBITUARY

Chester M. Aldrich, 68, a founder and president of the Braided Woven Fabric Co., Providence, R. I.

Francis E. Bach, 70, retired sales manager of Neisler Mills Co., Inc., New York, N. Y.

J. Malcolm Brogden, 50, president of the Coventry Co., Coventry, R. I.

Thomas J. Callaway, Sr., 63, former vice president of the Oakleaf Plant of Callaway Mills Co., LaGrange, Ga.

Quinton Todd Dickinson, 57, manager of the Coal Tar Chemicals Dept., Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J.

William R. Jackson, 65, retired president of Mary-Leila Cotton Mills, Greensboro, Ga.

Alfred Krup, 58, vice president of Hellwig Dyeing Corp., Philadelphia, Pa.

Walter F. Kelmer, 66, retired vice president and director of Faribault Woolen Mills Co., Faribault, Minn.

Harry E. Lees, 62, divisional superintendent of Whitin Machine Works, Whitinsville, Mass.

Joseph T. Lucia, 45, sales engineer for Proctor & Schwartz, Inc., Philadelphia, Pa.

John Alwyn MacMillan, 79, director and former president and chairman of the board of the Dayton Rubber Co., Dayton, Ohio.

Dennis D. O'Connell, 83, president and treasurer of Sterling Mills, Inc., Worcester, Mass.

Max Schiffman, 54, president of Macanal Mills, Inc., Salisbury, N. C.

Arthur S. Schulhoff, superintendent of knitting at Cashmere Corp. of America, Cleveland, Ohio.

Philip L. Sheerr, 80, founder of Philip L. Sheerr & Sons, Philadelphia, Pa.

Sam F. Sruh, 62, controller of Bernhard Altmann Corp., New York, N. Y.

William Watt, 70, claims manager for Alexander Smith, Inc., Yonkers, N. Y.

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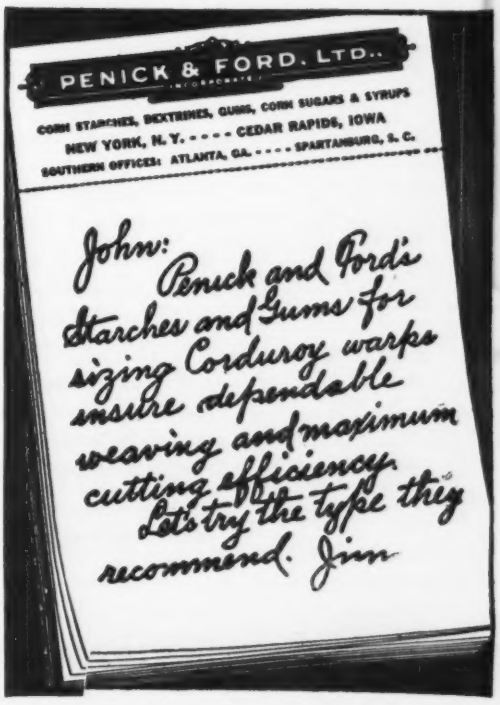
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AT YOUR FINGER TIPS, issue after issue, is one of your richest veins of job information – advertising. You might call it the "with what" type – which dovetails the "how" of the editorial pages. Easy to read, talking your language, geared specifically to the betterment of your business, this is the kind of practical data which may well help you do a job quicker, better – save your company money.

Each advertiser is obviously doing his level best to give you helpful information. By showing, through the advertising pages, how his product or service can benefit *you* and *your* company, he is taking *his* most efficient way toward a sale.

Add up all the advertisers and you've got a gold mine of current, on-the-job information. Yours for the reading are a wealth of data and facts on the very latest in products, services, tools . . . product developments, materials, processes, methods.

You, too, have a big stake in the advertising pages. Read them regularly, carefully to keep job-informed on the "with what" part of your business.

McGRAW-HILL FOR BUSINESS

McGRAW-HILL PUBLICATIONS

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

TEXTILE FINISHING Chemist. Central research laboratory of large chemical company located in New York area requires man. PhD. Organic, minimum of three years mill experience in textile resin finishing. Must have supervisory ability and proven interest in research and product development. P-4426, Textile World.

TRICOT MECHANIC—experienced, young, dynamic tricot mechanic. Sampling department of progressive organization. Pleasant air-conditioned working room in N. Y. C. Excellent opportunity for right man. P-4783, Textile World.

UNIVERSITY GRADUATE for research and development work on Textiles. Applicants should possess a degree in physics, chemistry or textile technology and have some experience in the field of cotton textiles. This position is suitable for a young man, preferably not over 30. Salary will be commensurate with qualifications and experience. Applications or requests for further information should be addressed to the Personnel Officer, Ontario Research Foundation, 43 Queen's Park, Toronto 5, Canada, stating age and giving full particulars of training and previous experience.

WANTED—DYER experienced on jig dyeing cotton-rayon fabrics. Mill located Concord, N. C. Address reply P-4847, Textile World.

WANTED—BOSS skein dyer—Silk and Nylon dyeing. State experience and salary expected. Replies will be treated confidentially. P-4722, Textile World.

SELLING OPPORTUNITY OFFERED

SALESMAN FOR Textile Specialties in North Carolina-South Carolina and Georgia. For well established company. Give full information. Replies kept confidential. SW-4866, Textile World.

POSITIONS WANTED

GRADUATE ENGINEER—Top school. Five years mill experience full-fashion hosiery, tricot, circular knitting. Knowledge of dyeing and finishing. Now in responsible production supervisory position. Interested in production, sales, technical service. PW-4817, Textile World.

MILL SUPT. or overseer on all types of synthetic especially filament rayon and nylon, orlon yarn. Have wide experience on all types of cotton. Able to compete. Mill closing out reason for the change. Good references. Will go to New England or Canada. PW-4868, Textile World.

RAYON-NYLON-Silk Throwster, desires position in supervisory capacity. Capable assuming full responsibility, training own help in all throwing depts., establishing piece work rates, throwing cost reports, etc., forward thinking, modern practice in all phases of throwing, married, references. PW-4270, Textile World.

SELLING OPPORTUNITY WANTED

WANTED MANUFACTURER'S Agent, experienced and well known to add a good account. Georgia, Alabama, and Mississippi territory now covered periodically every 8 weeks, cotton mills only. Commission basis. RA-4929, Textile World.

BUSINESS OPPORTUNITY

Start Venetian Blind Laundry.
Profitable lifetime business. Part or full time occupation. New machine. Free booklet. L. Co., 101 S. 44th St., Philadelphia 4, Pa.

SUPT. OF WEAVING
Recently returned from Canada
11 years Supt. of Weaving & Warp Preparation—Woolen & Worsteds
22 years exp. C&K Looms W-2 & W-3
New England born. Age 39
RESUME ON REQUEST
PW-4859, Textile World
330 W. 42 St., New York 36, N. Y.

TEXTILE TECHNICIAN
Available in August American 33, previously educated at English Textile Technical College, now engaged abroad as foreign erector Drapers Looms. Excellent administrator executive & technical background. Best references.
PW-4790, Textile World
330 W. 42 St., New York 36, N. Y.

20 YEARS' SERVICE
TO TOP
COMPANIES and EXECUTIVES

As the National Clearing House for QUALITY in men and positions—assures you the utmost in understanding and confidential handling of YOUR requirements for a MAN or a POSITION. Write for details:

B. T. BAGLEY
CADILLAC EMPLOYMENT AGENCY
Suite 614 — 220 S. State St.
Chicago 4, Ill. — WAbash 2-4800

WANTED
TEXTILE MICROSCOPIST

Experienced Microscopist for research in the field of textiles. Excellent facilities and working conditions. Liberal benefits. Please give resume of personal background, education and experience, with salary requirements, in first letter.

Celanese Corporation of America
Central Research Laboratory
Summit, New Jersey

DYER....

For large modern highly diversified northern mill. Applicants should have experience Box dyeing synthetic piece goods. Academic background considered desirable. Excellent oppartunity in progressive company for right man. Reply should be detailed and will be held in strict confidence.

Box 803, 1474 Baroadway, N. Y. 36

REPRESENTATIVE WANTED
Established all New England States territory open for representative with seat in Boston, Providence, Worcester or nearby. Men with lines for CLOTH ROOMS in TEXTILE MILLS and well known—with mechanical background, who wish to carry another profitable line please submit full details of past experience, age and education to
TRUMETER COMPANY
1265 Broadway, New York 1, N. Y.

MEN WANTED
POSITIONS OPEN

We can place: SUPT. rayon weav. plant; supt. silk throwing; woolen cloth supts.; woolen yarn supts.; tricot mgrs., supts., overseers and fixers; employment mgr.; hos. mill executives; asst. supt. woolen mill; designers and asst. designers fancy woolen and fancy worsted men's wear and dress goods; mgr. loom mfg. plant.

OVERSEERS FOR FOLLOWING DEPTS.: woolen and cot. carding; knitting girdles and surgical garments; woolen and worsted weav.; bleaching raw cotton and cotton piece goods; rubber covering; nar. fabric weaving; picking; fin. spun rayons, cotton and silk fabrics; entering and quilling; Axminster setting; worsted card. and comb.; silk dyeing; worsted spin., twist. and wind.; preparation (southern silk mill); drawing-pin drafters; garnett foreman-fixers—woolen, and worsted finishing, commission finishing plant; knit. Tompkins machines; overseers and fixers for woolen mule and frame spin.; forelady finishing knit. fabrics; asst. mgr. worsted yarn mill.

SECOND HANDS FOR FOLLOWING DEPTS.: woolen card.; wet and dry fin.; woolen dye.; dyeing laces and tricot fabrics; shearing and napping; cotton-rayon weav.

CHEMISTS, chem. engineers and laboratory men; ind. engineers; cotton yarn salesmen (2); salesmen for machy., dyestuffs, chemicals and shuttle furs; graduates, with or without mill exp.; cost accountants.

MASTER MECHANICS: mech. and plant engineers; mach. designer; boiler house supt.; fixers for Komet, Tompkins, Brinton, Supreme machines; Axminster loom fixer; woolen-worsted dresser tenders; woolen card fixer; sew. mach. fixers; cot. slasher tender; shear tender pile fabrics; loom fixers.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the textile mills.

CHARLES P. RAYMOND SERVICE, Inc.
Telephone Liberty 2-6547
294 Washington St. Boston 8, Mass.
SPECIALISTS IN PLACING AND IN SUPPLYING TEXTILE MILL EXECUTIVES

CHEMIST—TEXTILE

Progressive Company offers excellent opportunity to man who can do development work and trouble shooting on finishes and dye house problems in large modern plant, handling synthetic piece goods. Replies should be detailed. This ad is known to our people.

Box 804, 1474 Broadway, N. Y. 36

TEXTILE CHEMIST & DYER WANTED
Opportunity for alert man, age 28-35, laboratory, quality control and development. Some administrative duties. Experience with yarns desirable. Midwest location. Write giving full details to
P-4916, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
QUILLING FIXERS ALSO THROWING FIXERS
Good pay, steady work, pleasant working conditions, modern equipment.
Mill Location: Eastern North Carolina
P 4910 Textile World, 330 West 42nd St., New York 36, N. Y.

SALESMAN WANTED

To sell finishing materials to the textile mills and finishing plants in New England and Middle Atlantic States. Product is used primarily on cottons, spun rayons and cotton and spun rayon mixed fabrics; also on worsteds.

Our client prefers a salesman who has a wide acquaintance and a following; he should have technical knowledge of finishing operations.

Attractive salary and all expenses paid. For the right man, the future possibilities are most promising.

Address in confidence

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston 8, Mass.
Telephone Liberty 2-6547

Additional Position Vacant Advertising on the following page.

80—Whitin 40" Cards, 27" doffers
100—Saco-Pettee 45" Cards, 27" doffers
6—S-L 10x5 Roving Long Draft
12—S-L Spin. Frames, 3½" ga., 264 spdls., Long Draft
2—Kitson Single Process Pickers
12—F & J Twisters, 3 ¾" ga., tape drive, 192 spdls.
1—Entwistle Hi-Speed Warper w/ magazine cone creel, 600 ends
1—Johnson Slasher, 7 Drums 60" width x 23" dia.
2—Rice, Barton & Fales 8 color Print Machine, 50" wide
1—Textile Print Mch—12 colors, 48"
4—Textile Vat Agers, 30' x 60"
1—Stainless Steel Ager, 16' x 50"
4—V.V. Stainless Steel Duplex Dye Becks, 6' wide
1—Stainless Steel Tensionless Rope Washer, 63 compts.
2—Open Width Greige Washers, 3 compts., 50" & 60"
1—RBF Hydraulic Mandrel Jack

OPERATING MILLS FOR SALE

COTTON PRINT CLOTH MILL—50,000 Spdls., 1500 Looms
COTTON SHEETING MILL—16,000 Spdls., 400 Looms
CARDED YARN MILL, 10's to 40's—14,000 Spdls.
JACQUARD PLUSH MILL—100 Looms
SMALL JIGG DYE PLANT—14 Jiggs
DYE & PRINT PLANT—18 Print Machines

140—Draper XD Looms, 64" cloth, 1946
200—Draper XD Looms, 48" cloth, 1946
200—Draper E Looms, 42" cloth, belt
50—Draper X Looms, 42" cloth, dobby
24—C & K S6 Looms, 52" cloth, 1947
18—C & K C4 Looms, 76" cloth, 1946
100—Gingham Looms, 4 x 1, 40" cloth, M.D.
1—Werner Nylon Pre-Setting Machine, Age 1946
1—Mercerizing Range 60" w/Stainless Steel Flexreel
1—Hinnekens Boil-Off Range, 24' long x 66" wide

REPUBLIC TEXTILE EQUIPMENT CO.
40 WORTH STREET NEW YORK CITY
Purchase and Sale of Used Machinery
REFINANCING · APPRAISALS · PURCHASE · SALE · LIQUIDATION OF MILL PROPERTIES

TEXTILE EDITOR

Must be familiar with warp, circular hosiery, and circular underwear and outerwear knitting. Prefer a man who has previously written for publication. Age 25 to 40. Give full details on education, experience, salary, etc., in first letter.

P-4399, Textile World
330 W. 42 St., New York 36, N. Y.

INDUSTRIAL ENGINEER

Supervise time study, wage incentives, cost control systems. Knowledge of textile industry & commission throwing helpful. Wanted for textile mill located Eastern Penn (Lehigh Valley). Write details

P-4827, Textile World
330 W. 42 St., New York 36, N. Y.

TEXTILE PLANT WANTED: We are now manufacturing over $20,000,000 in various lines and wish to expand by acquisition of assets or stock of one or more industrial companies. In our negotiations the seller's problems and wishes will receive full consideration. Present personnel will normally be retained.

Address all replies

"Confidential" C. J. GALE, Sec.
733 Broadway, N. Y. 7. N. Y. GA 7-1819

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

WANTED—SURPLUS

Dyes — Chemicals — Pigments
Plasticizers — Solvents
By-Products — Wastes — Equipment

CHEMICAL SERVICE CORP.
80-10 Beaver St. New York 5, N. Y.

Tricot Manufacturer is looking for a

SAMPLE TRICOT MACHINE

2 or 3 bar, preferably a 3 bar, about 30 inches wide.

W-3308, Textile World
330 W. 42 St., New York 36, N. Y.

RESEARCH TEXTILE ENGINEER

For work in the broad field of development of new yarn and fabric structures, utilization of new fibers, and related textile problems.

Requires preferably advanced degree in Engineering or Physics with at least four to five years experience in Textile Research. Excellent opportunity for aggressive and capable qualified person.

Liberal benefits and pleasant working conditions. Please give resume of personal background, education and experience, with salary requirements, in first letter.

CELANESE CORPORATION OF AMERICA
Central Research Laboratory
SUMMIT, NEW JERSEY

PRODUCTION CONTROL and PLANNING SPECIALIST

Large manufacturer of chemical yarns will make an attractive offer to the right man for its New York Production Planning Department. Qualifications include training and experience in production planning and control; a college degree or equivalent educational background; considerable specialized training and experience in scheduling and control of production and inventory; age about 35. The work will include scheduling output of chemical yarn spinning and textile processing equipment, and a knowledge of textile processes is desirable but not essential.

Please write complete details of education, experience and salary desired.

Box P-4827, Textile World
330 W. 42 St., New York 36, N. Y.

PROFESSIONAL SERVICES

EATON & BELL
Patent Attorneys
904 Johnston Bldg., Charlotte, N. C.
753 Munsey Bldg., Washington, D. C.

SALES ENGINEER

New England territory. Permanent position. Salary and expenses. Old established leading manufacturer of steam and hydraulic specialties primarily to textile, paper, petroleum, rubber and chemical industries. Engineering or mechanical training and sales experience preferred. Age 25 to 40. Give full personal history, interests and activities, compensation requirements, and enclose recent photograph if available.

P-4738, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

TRICOT MEN

Large established Northern Knitting Mill has openings for

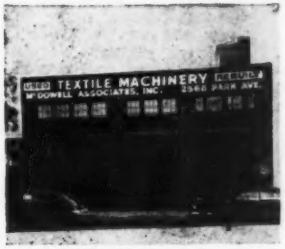
1. FABRIC DESIGNER
2. MECHANIC

Each must be experienced in his field. Salary commensurate with ability. Excellent opportunity with progressive company. Replies should be detailed and will be held in confidence.

Box 805, 1474 Broadway, N. Y. 36

THE KULJIAN CORPORATION
Rayon Plants & Textile Mills
• Design
• Construction
• Management
1200 N. Broad St., Phila. 21, Pa.
Offices Throughout the World

MARTIN H. GURLEY, JR.
Specializing in
• FIBROUS • MATERIALS
LABORATORIES AT PAWTUCKET, R. I.
P. O. Box 657 Tel. PA 5-3561

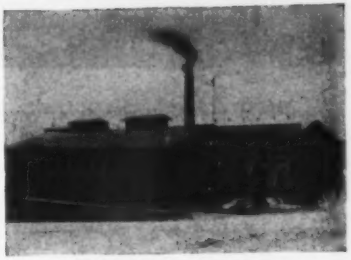


Executive Offices and New York Warehouse

McDOWELL ASSOCIATES, INC.

2568 Park Avenue
Bronx 51, New York
Tel.: MElrose 5-6741

FOR SALE



Hudson, New York Warehouse

PARTIAL LIST - - - IMMEDIATE DELIVERY

DYEING AND FINISHING

2 BATCHERS, Simpson type 54"
1 BRUSHING AND SANDING MACHINE 66"
1 CALENDER, Hyd., 3 roll 60"
1 SEMI-DECATUR 72" 1940 model
1 DOUBLING, WINDING AND MEASURING MACHINE 66"
1 DRYER, pin type 72", 1940 model
1 DRYER, Skein, continuous type, 3 section unit
2 PACKAGE DYEING MACHINES, S. S. 200-400 lb. units
1 DYEING MACHINE, Skein, S. S. Pulsating type
1 EXTRACTOR 50", monel basket
1 FOLDER 50" with air lift
1 JIG, S. S. 80"
2 MIXING KETTLES 26" x 27", pumps and coils
2 NAPPERS, D.A., 18 roll, 80"-90"
1 NAPPER, D.A., 24 roll, 80"
1 NAPPER, Fetter, 22 roll, 80"
1 NAPPER, knit goods, 20 roll, 80"
2 PRESSES, Rotary, 66"-86"
1 SCALE, Dial Type, 125 lb. 2 oz. graduations
1 SHEAR, 4 blade, 80 60"
2 SHEARS, double cutter 66½"
1 SHEARING, BRUSHING AND STEAMING RANGE 66½"
2 SETS RUBBER SQUEEZE ROLLS 18" x 18"
1 STARCH MANGLE, 2 roll 54"
2 2 ROLL SQUEEZE SETS 50"-65"
1 3 ROLL SQUEEZE SET 50"
1 SLASHER, 5 Drum 52", Sizing unit, Kettle, etc.
1 TACKING MACHINE 50" with sewing head
3 TEASLE GIGS, single cylinder 62", Adj. centers
1 TENTER FRAME, Clip, 80' long x 50" wide, S. S. inserts
1 SLACK ROPE WASHER, totally enclosed, S. S. 180"
2 CLOTH WINDERS 50"-60" with dials

WOOLEN-WORSTED

2 SETS CARDS, 3 cyl. Iron, 48" x 60"
3 SETS CARDS, 3 cyl. Iron 53" x 48" tape condensers
4 SETS CARDS, 3 cyl. Iron 60" x 54" tape condensers
2 SETS CARDS, 3 cyl. Iron 72" x 42" tape condensers
2 SETS CARDS, 3 cyl. Iron 72" x 42" tape condensers
2 RETURN AIR UPRIGHT CONDENSERS
6 CEILING TYPE CONDENSERS, Single Drum
2 TAPE CONDENSERS 60", 4 bank, 96 ends
1 HOPPER FEED CARD 60"
4 HOPPER FEEDERS PICKERS 48"
6 SCOTCH CENTER DRAW FEEDS 48"
2 GARNETTS, 5 cyl. units 30" x 60"
3 BURR PICKERS 24" 36"-48"
1 WET STOCK PICKER, S. S. 60"
4 MIXING PICKERS, 6 Bars, 48"
3 RAG PICKERS 18" x 36" O.D. cyl.
1 SHODDY PICKER 20" x 30" B.S. cyl.
3 SPINNING FRAMES, 180 sp. ea., 4" gauge
4 JACK-SPOOLERS 43 3/4"-40 end
1 FANCY TWISTER 180 sp. 4½" gauge
2 WARP REELS 82" H. D. Pin Type
2 WINDERS, Skein to Cone, 40 sp. ea.
2 WINDERS, Tube Cone, 100 sp. ea.
1 WINDER, Comb. cones tubes, 60sp.

WEAVING

48 XD 60" Dobbies, M.D. Draper
140 XD 64" Dobbies M.D. Draper
12 Mod. D. 64" Cam M.D. Draper
60 Mod. D. 68", 2 harness B.D. Draper
24 Mod. D. 60" Cam M.D. Draper
24-76½" Jim Head M.D. Draper
126-81" 20 Har. M.D. Draper
16 C&K C4 48" M.D.
80 C&K S3 54" M.D.
90 C&K S5 54" M.D.
26 C&K S6 56" M.D.
18 C&K C4 Convertible 76" M.D.
72 C&K W1 B.B. 82" M.D.
10 C&K W3 Slijur Lubricators 92" M.D.
18 C&K 92" Auto M.D.

COTTON

85 CARDS, Model L 40"
7 SLIVER LAPPERS 54"
6 RIBBON LAPPERS 11¾"
24 D2 COMBERS, 8 heads ea., 40 deliveries drawing
12" collers
14 SPEEDERS, 160 sp. ea. 8 x 3¼
80 SPINNING FRAMES, 2-40 sp. 3" Gauges
12 SPINNING FRAMES, 240 sp. 3¼" Gauges, long draft
12 TWISTERS, 192 sp. ea. 2¾" rings
20 TWISTERS, 240 sp. ea. 2" ring
1 WARPER 54½", 800 end, Mag. Creel
1 WARPER 54½", 600 end, Mag. Creel

COMPRESSORS
VACUUM PUMPS
SINCE 1902

NEW
Rebuilt—Tested—Guaranteed

HUMIDIFYING COMPRESSORS
40%—60% Savings
TRY THE BEST AMERICAN REBUILTS
We Outvalue the Rest
—PROMPT SHIPMENT—

FOR RENT—ANY ONE OF OVER 200 COMPRESSORS IN STOCK

Air Receivers - Aftercoolers In Stock

AMERICAN AIR COMPRESSOR CORP.
48th & Dell Ave. No. Bergen, N. J.

MILLER MACHINERY CO.
66 RAILROAD AVE. PATERSON, N. J.
Tel. Sh 2-5467-8

Textile Machinery and Supplies
BOUGHT AND SOLD
Warpers • Winders • Quillers
Looms

FIELDCREST MILLS
ZION, ILLINOIS

WEAVING
1—Nottingham Lace Loom 360" x 6 Pt.
5—Nottingham Lace Looms 360" x 8 Pt.

FINISHING
1—National Heat Setting Mch. 6-Roll 72 x 10 Yr 1951
1—Burlington S.S. Bell-Off Mch. Yr 1951
1—W & J Padder 2-Rubber Roll 64 x 18 Yr 1951
1—Tenter Frame Unit Includes Stack 110" Dry Cans. Opening, 60" Tenter with W & J Clips. Despatch 40" Housing with Gas Burners Etc. All Rebuilt or new in 1951.
2—Rodney Hunt S.S. 8-comp 18" Slack Loop Washers 1941.
1—R-H ditto Tint & Starch Mch. 1941
1—D. Gessner 72" Full Decater Unit.
1—Infra-Red Drying Unit for Table Cloths. 1948
1—Cocker High Speed Warper, 126" beam. Reeves Control. 1943
1—Cocker 1200 Live End Magazine Creel. Elec Stop Motion.
1—Stack 4—Tinned Dry Cans 23 x 72.

MISCELLANEOUS
1—Westinghouse 100 KW Ignitron Rectifier Unit 220-440/60/3 to 230V D.C. 1948
3—Fairbanks 1000 x 1-Lb Dial Dormant Floor Scales 1947
75—Fibre 4-Wheel Box Trucks 40 x 10 x 23
12—Dreadnaught 4-Wheel Box Trucks 42 x 24 x 24
1—Cleveland Tramrail System (abt 250') 1947
1—Barrett Cravens 500# Portable Elec Stacker 1944
1—Finnell 24" Floor Scrubbing Unit

PLANT OPEN FOR INSPECTION.

PARIS FABRIC MILL
COLUMBIA, PENNA.

This plant equipped new in 1948.

56—C & K 56" Mdl S-8 Automatic Looms 2 x 1 Box. 20 H. Dobbies. 7-3/8 Bobbin. Complete with all attachments, parts, supplies. S.S. Hoddies & Knives. EXCELLENT. L.O. 16068.
1—Whitin 12 spdl Schweiter Winders. 1948
1—Slip Eastwood 101" Type DT Horizontal Warper Ser 8377. 22-440/60/3/ Motor drive. EX
1—Metal Pin Creel 504 Ends. Glass Rods & Reeds.
126—S. S. Quill or Pin Boards for 60 quills.
20—Walton Hvy Industrial Humidifiers. Controls. Like New.
1—Measuregraph Co. 70" Insp. Meas. & Tubing Mch. 1948
1—Herman 66" Insp. Meas. & Tubing Mch. #GC3719.
1—60" Insp. Meas. & Tubing Mch.
1—Am. Monorail System with 1-ton Chain Hoist.
7—Metal Rack Trucks for Pin Boards.
31—Canvas Baskets 2, 2½, 4 & 6 Bushel.
1—Coca Cola 64 Bottle Vending Machine.
1—Lincoln Mdl 244 Elec Lubrigun 110V.
1—IBM Elec Time Clock 115V. Card Racks.
1—Toledo Portable Dial Scale 125 x 1/10 Lb dial. Dble Tare Bm. Style 31-0881 1U. Mounted on Cast Aluminum Base.
1—Fairbanks Steel Portable Floor Scale Dble Beam. Top 1000 x 10 Lbs. Bott 10 Lbs x ½ Lbs.

Misc small items.

INSPECTION BY APPOINTMENT.

FRANK G. W. McKITTRICK CO.
78 FLETCHER STREET LOWELL, MASS.
Phone Lowell 6391

LOUIS J. WELSH, Pres. & Treas. — ROBERT H. WELSH, V. Pres. & Gen. Mgr.

JOHN J. McCLOSKEY, Inc.
MANUFACTURERS AND DEALERS

TEXTILE MACHINERY OF ALL TYPES
APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED—REBUILT
Office Factory Warehouse: Collingswood, N. J Phone 5-0886

S&K Where your $$$$ buy MORE

COMPLETE PLANT—PLASTIC SEAT COVERS C & K AUTO. LOOMS 82"

380 Auto Drapers 43" to 76" cloth
16 C & K Auto Bob Changers 2 x 1 - 72" R.S.
140 S-3 C & K 52" R.S. shuttle changers
12 C & K 4 x 4 - 54" R.S.
40 C & K Woolen looms 72" to 110" R.S.

Sipp Hyspeed Warper

DYEING MACHINERY

1 Cottage Steamer 24' x 10'
1 2 Roll 60" Quetch
1 S.S. open width washer with squeeze rolls
1 Ager 60" 48 rolls 20' long
1 48" self balancing Extractor
1 set of 9-68" Copper Cans
1 Set of 5-66" Copper Cans 30" diam.
1 New 80½" Beamer
14 S. S. Cans 48"
1 80" wide Pin Tenter Frame
1 40" Hinnikens 60" frame with gas Burners, reeves & motor
1 60" Hinnikens Jiggs all stainless steel
1 Paterson Examiner, 72" wide
1 72" Park Woolson Decater
1 Set 18 Dry Cans 48" face; 5 stainless steel, 13 iron tinned with reeves
8 Dye Boxes S.S. lined 8'—10'—12'
1 Jostrom fabric conditioner 64"
1 19 can Butterworth dryer 72"
1 Textile Tenter Frame 52" wide 40' long
4 Three (3) Roll Padders 45"
30 50" Dry Cans
5 Atwood SB Twisters
9 Atwood Single Deck Utility Spinners
8 Sipp Warpers & Winders
20 ±90 Universals
4 Oswald-Grundy 46—Spindle Cop Winders
5 Foster-Coners 75A
3 Johnson Slashers 7 Can & 3 Can—66" & 5 Can
1 Set 17 Can Butterworth 132" S.S. B.B. Motor & Reeves Drive
1 72" Greige Washer with Squeeze Rolls 24' long

STAVE & KESSLER
106 KEARNEY ST. P. O. Box 1611 Paterson, N. J.
Phone ARmory 4-7486

LIQUIDATION SALE

PARTIAL LIST

1—64" S. S. Open Washer, 6 sets motor driven squeeze rolls.
1—110" S. S. Open Washer, 6 sets motor driven squeeze rolls.
2—sets 66"x23" Dry Cans, copper, ball bearing, syphon, vertical.
1—set 108"x23" Dry Cans, copper, ball bearing, syphon, horizontal.
1—Hydraulic Padder, 2-96"x18" rubber rolls, s. s. pan.
1—60" Extractor, s.s. basket, side motor.
1—3 color 60" Print Machine.

TENTER FRAMES

1—90'x60", S. S. clips, vari speed drive.
1—40'x64", S.S. clips, motor and Reeves.
1—30'x64", brass clips, motor.
1—50'x66", S.S. clips, motor and Reeves, 1948.
1—40'96", Pins, enclosed, motor.
1—80'x92", Pins, enclosed, motor.
1—80'x97", Pins, enclosed, motor.
3—80'x60", Pins, enclosed, motor.
1—60'x92", Pins, motor, and Reeves.

JIGGS • DYE BECKS • CALENDERS • PALMERS • PRINT MACHINES

INDUSTRIAL PRODUCTS OF AMERICA
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Static Electricity

(*Continued from page 228*)

best antistatic agent on the market today, the answer is "No."

If the question means: can we set up the requirements for an ideal antistatic agent, the answer is "Yes."

If the question means, however, are we likely to have an ideal antistatic agent in the foreseeable future, the answer is "Maybe."

Among true antistatic agents none are truly permanent on all fibers, and hence miss the ideal in this respect. Some, however, are more permanent than others. Among this handful of true antistatic agents we know of only one that is substantive to Dacron. Several of the antistatic agents among this handful affect the lightfastness of colors and develop yellowing on storage of the goods. Among this small group, some work well on nylon but are ineffective on some of the other fibers. Some of these true antistatic agents have excellent properties in many respects but some of them are not compatible with other finishing agents.

13 Can the efficiency of antistatic agents on textiles be determined by laboratory instruments presently available?

There are indeed quite a few instruments being used that do give some information about some of the antistatic properties of a textile treated with antistatic agents. They don't tell the whole story, and in most cases they don't even tell an honest story—at least as far as practical performance of the treated textile is concerned.

One basic type of instrument measures the charge generated by friction on the treated textile, and the other basic type measures the conductivity or charge leak-off rate of the textile.

In many cases the machines are devised to make both types of measurements, and in some cases the measurement made is a combination of the two.

Obviously there must be great differences between the conditions set up in such a machine for generating static and those conditions encountered in practice that generate static.

The measurement in the laboratory of the electrical conductivity of the sample treated with an antistatic agent is also fraught with danger when attempts are made to relate these test results to practical results.

In the first place most conductivity instruments measure the time it takes for a certain high charge, which is usually the charge built up by the

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PARTIAL LIST OF MACHINERY & SUPPLIES WE HAVE IN OUR WAREHOUSE STOCK FOR IMMEDIATE DELIVERY

120—Draper 84" XD automatic bobbin changing motorized looms, fully equipped, 20 harness dobby, 440 volt motor, practically new.

48—C & K, S-6 56" 2 x 1 automatic bobbin changing motorized looms, 20 harness dobby, 220 volt motor, practically new.

24—C & K, S-5, 56" 2 x 1 looms complete with 220 volt motors.

24—Draper XK 44" motorized looms, 220 volt motor complete with dobbies.

144—Spindles Whitin-Schweiter automatic quill winder complete, new 1947.

1—83" Sipp type DY 8 yard Warper complete, 220 volt motor.

14—Complete units Simco static eliminator 110 volt, 60 cycle, midget power unit with plug-in cord, static bars 55", supporting brackets and necessary high tension cables, insulating supports for guiding cable, ground wire and marda lamps.

96—C & K, 2 x 1, Super silk automatic bobbin changing motorized looms complete, 220 volt motors.

150—C & K, S-3 automatic shuttle changing 58" motorized looms, 220 volt motors, large shuttle boxes, will take 8-¾" quills, excellent condition, exceptionally good buy.

88—Atwood Monarch type double deck Spinners complete with motors and drives.

32—Atwood double deck Spinners ½ lb. package—200 sp. each.

6—Fletcher 12-fly late type Reelers complete with motor and drive, 550 volt motors.

5 and 7 can Slashers, both silk and cotton system, 60 and 66" complete, equipped with 220 volt motors, will recondition and guarantee.

1 lot of #90 quill winders will recondition to suit your needs.

1 lot of Universal #50 cone winders, will recondition to suit your needs.

Large assortment of 8 yard Sipp, both silk and cotton system warpers.

Several Sipp Eastwood magazine cone creels, late type tensions and electrical knock off.

2 Allen 54" late type Sipp Direct warper, will take a 30" beam head.

Large assortment of C & K, 4 x 6, 56" to 72" motorized looms with large boxes, complete.

Large assortment of stainless steel reeds.

Large assortment of C & K loom parts, KA Rhode Island electrical warp stop motion, drop wires, pick clocks, quills, shuttles, temples, feelers, etc.

1—Proctor & Schwartz Automatic boading, drying & stripping machine for Ladies Hosiery—2 operator, high speed type, Model "D", 1947.
30 leg boads—5 sets toes
Top stripper
V Belt Drive
1½ HP motor

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10—24 carrier N. E. Butt #2 braiders, 3 roll or sheaves.
3—36 carrier N. E. Butt #2 braiders, side can.
7—3 carrier rug braiders, 4x8" jumbo spools.
30—16 carrier Wardwell braiders, (late types).
1—8 gang Asbestos server. (Wardwell).
10—25 carrier Tex. Braiders, 2 hds. each.
3—16 carrier Tex. Braiders, 3 hds. each.
4—Cordage braiders, 3 single, 1-2 hds.
8—9 carrier Soutache braiders, 5 hds. each.
2—Single head Universal tube winders, #5.
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2—Tiosh flat knitting machines.

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1—40 Spindle Foster #12, skein in tube
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1—set 14 Steel Dry Cans 80", plus one S. S. Cooling Can
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1—4' & 1—6' Dye Beck, S. S. Box & Reel, M. D.
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1—set Mt. Hope Guiders on 60" stand
1—Merrow Sewing Machine 60-3 D. B. with table and motor
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1—P.&S. 60" Card Feed (Mod. 535—Practically New)
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1—Woonsocket 36" x 36" ceiling condenser & blower
2—18" x 18" P. & S. Ceiling Condensers
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5—Draper 54" Mod. G Warpers
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12—C. & K. W-1 78", 4x1 Looms
4—C. & K. 92" 4x1 automatic Looms
4—C. & K. 82" 4x1 automatic Looms
36—C. & K. 82" (4x4) Box Looms
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2—Fidelity Skein Reelers
1—Whitin Quiller 2¼" Gauge (long chain)
1—P.S. 132 sp. Twister 4" Ring, band dr.
1—Lasenby 15 sp. Cop Winder
1—Sargent 10 sp. Balling Machine, 1948

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1—Hunter 26B Fulling Mill
1—Hunter Squeeze Set, 98", hydraulic
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Suitable for Satins, Cire & Paper, 2—6"x24" Steel rollers, automatic controls for Heat, perfect condition, complete with Motor & many extras.

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3 cylinder 60" x 60" all metal card with breasts card clothing in various styles for sale at 25% discount under present market. Please write for available list of what we have to offer.

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frictional machine, to drop to a half value. We know that the charge under such conditions is not related to the amount of charge that would be present in the fabric under practical conditions. The rate of transference at one voltage is not necessarily related to the rate of transference or conductance at some other voltage.

While several other sources of error in present laboratory instruments could be discussed, such a discussion would be too lengthy. Suffice to say that, in the opinion of our technical staff and in the opinion of several experts who have investigated the subject, there is no instrument that has been described in the literature, or of which we have knowledge, that can accurately or even reasonably foretell the actual performance properties of a treated textile under plant conditions.

14 How do we recognize our textile problem as a static problem?

The majority of cases where static is the cause of our trouble are easy to recognize. Sometimes the fact that static is the cause makes itself known very clearly by the fact that as we approach the trouble spot, our hair may actually stand on end or we may receive an unpleasant electrical shock.

In less obvious cases, a relationship between the intensity of the problem and changes in temperature and humidity may give us a clue. If the trouble intensifies as the humidity goes down and the weather becomes cooler, suspect static.

If our textile problem involves a ballooning effect in yarn or a repellency of one yarn from another or the attraction of yarn to a machine part, if there is running-out of guides, or if there is an unusual attraction by the fabric for lint or dirt, suspect static.

Finally, we may say that when we find any kind of problem in any dry operation involving one of the new synthetic fibers, suspect static. The chances are that it is the culprit.

15 How do we choose an antistatic agent for our own particular problem?

Suppose we are interested in the control of static in the sizing and weaving of undyed acetate warps. Here we are concerned not only with the antistatic properties, but we must also consider the compatibility of the agent with our size mix. We may not be concerned with the effect of the agent on the lightfastness of colors, or its durability. The antistatic agent

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anti-wear tensions, gear gain, motorized, one motor per 12 spindles—in excellent like new operating condition.

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20,000—3" Fibre head—4" traverse—1⅜" barrel
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19 ATWOOD-MONARCH SPINNERS individually motorized, 104 spindles, 4¼" spacing

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5 SCRANTON REELS — 6 SKEINS EACH 12 SKEINS TO EACH FLY

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many miscellaneous items such as winders, bobbin racks, extractors, slate tubs, humidifiers, lift trucks, gas boiler, and many other items too numerous to mention.

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Hydraulically Operated Glass Sticks
15 Arm
Rated Capacity
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Complete with
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Includes 3 HP Motor for Operating Machine
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13 pr. of 22"
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304 Spindle
3½" Gauge—10½" Traverse

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2—W.J. Tenter Frames, 30' x 54"
1—W.J. Tenter Frame, 30' x 96"
1—3 roll silk or rayon Calender, M. D.
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2—150 gal. Jacketed Kettles with agitators.
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1—72" Hydraulic Padder, M. D.
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1—60" Measuring, Inspecting & Tubing Machine, tube to tube, new, variable speed, forward, neutral & reverse.
30-60 gallon copper steam jacketed Kettles.
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1—90' x 60" wide Textile Tenter & Chain.
1—50 Cylinder Copper Dryer 113" face.
1—6-Roll Calender 44" face complete with 20HP motor and controls.
10—Johnson & Bassett Pantographs, complete with diamonds.
1—44" 2-Roll Padder with stainless steel pan.
1—Complete Franklin package Dyeing Plant. Monel Metal Tanks.
1—65" Palmer machine complete with motor, gear box, blanket, etc.
1—120" Hydraulic Padder.
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1—Two beater single process 40" Kitson Picker, #7 evener and Saco Lowell blending reserve
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50—S&W B-5 machines 3½", 220 needle, 48 gauge.
30—Banner Wraps 3", 3¼", 3½", 48 gauge, 8-step.

4—Turbo Pre-boarders, 48-form postwar type.
2—Stainless steel 48" Extractors postwar—rebuilt.
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1—Hercules 48" Extractor, rebuilt
2—Smith Drum 50 lb. 11RD Rotary Dye machines M.D.
4—Paramount pre-boarders 24/24 form, good shape.

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must not have any harmful effect on subsequent processing. If, at the same time, the antistatic agent has some softening or lubricating properties, then this certainly would be a desirable property. The antistatic properties of the agent must be sufficient to remove the static that causes our particular problem.

Suppose, however, we were going to use an antistatic agent to control the development of static in a nurse's uniform, made of one of the newer synthetic fibers. Here, of course, highest possible antistatic effects would also be an important property, but there would probably be no requirement for compatibility of the agent with other substances. Softening properties might be desirable, but not important. The color of the antistatic agent would be important. Yellowing would be undesirable and permanence or at least renewability of the antistatic agent would be of the utmost desirability.

Take the matter of substantivity. It might be necessary to apply an antistatic agent to yarn in the form of skeins or packages for best results. Here, one property that would be a must would be substantivity so that it could be applied economically and evenly to the yarn.

Finally, after we have made our selection, we must apply these agents under actual plant conditions and note our practical results.

If our antistatic effects are needed from a manufacturing standpoint, the results will be obvious. Either our problem is eliminated by the antistatic agent or it isn't.

If our antistatic problem relates to consumer use, however, we face some difficulties, for our antistatic results are less obvious. Until such time as satisfactory laboratory testing instruments for antistatic properties become available, there is no answer other than to thoroughly test our textile under actual consumer conditions. Only in this way can we get our final story.

Is there a

SCRAP MINE

in your plant?

★

Dig it out for defense!

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1—D&F Card Balling Heads—18."

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4—Sql Hd Open Gill Boxes Dble Cam Delivery
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6—Draw Boxes 4-spdl 14x8
8—Draw Boxes 6-spdl 14x8 & 14x9
6—Draw Boxes 8-spdl 14x7
10—Draw Boxes 8-spdl 12x6
8—Flyer Reducers 30-spdl 9x5
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4—Whitin 40x6½" Ring Rovers 8x4½ (1942)
3—P.S.&S. 40x6½ Ring Rovers 8x4½ (1941-2)
Bobbins—spools—creels, etc.

CONE MACHINERY

2—Finishers 24-spdl 12x6
2—Reducers 60-spdl 10x5
4—Speeders 72-spdl 8x4½
12—Speeders 112-spdl 6x3½
Spools—creels, etc.

FRENCH SYSTEM

1—Intersecting 3-Hd Gill Box plus Cotton Hd.
1—Intersecting 4-Hd Gill Box plus Cotton Hd.
2—Intersecting 5-Hd Boxes (4-Wstd&1-Cotton)
2—Intersecting 8-Hd Boxes with 8-Ball Delivery
3—First Draw Boxes 10 Hd. Sacm
3—Second Draw Boxes 11 Hd. Sacm
3—Second Draw Boxes 11 Hd. Sacm
8—Second Reducers 26 Hd. Sacm
12—First Finishers 53 Hd. Sacm
4—First Reducers 23 Hd. Sacm
1—First Gill 5 Hd x 5 Ball Del.
2—Second Gill 4 Hd x 8 Ball Del.

SPINNING—TWISTING

12—P.S. 208-spdl x 3½" p. x 2-¾" Ring Frames with Whitin Rabbeth spdl Compensating Ring Rail Changeovers.
15—LMS 208 x 3¼" p. Cap Frames. Long spdls.
1—P.S. 200-spdl Dolly Rail Type Ring Frame. Rabbeth spdls.

WINDING

3—Foster 100-spdl Mdl 102 Wood Cone Winders
2—Uni #60 x 96-spdl Paper Cone Winders
2—Uni #60 x 96-spdl Wood Cone Winders
70—Uni #90 x 20-spdl Filling Winders

WARPING & SLASHING

1—Cocker High Speed Warper
2—Iron Cheese Creels (not magazine)
2—French Slashers with creels

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141—DRAPER 72" MODIFIED D LOOMS 81" Reedspace.
WILL SELL PARTS ONLY UNLESS FOR EXPORT.
20-H Dobbies. 3-shift Pick Clocks. RI 6-Bank Elec Warp Stops. 4" Whip Rolls.
Draper 6 magazine filling cutters. 1-HP 220/60/3 MOTORS. Looms are complete, in excellent condition and will sell any parts from them.
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12—P&W 66" x 2-Blade Shears Mdl A
3—P&W 66" x 3-Blade Manchester Shears
8—Kettling & Braun 66" x 2-Blade Gap Shears
2—Voelker 66" Rotary Cloth Presses
1—Gessner 66" Apron Type Cloth Press
1—Pin Tenter 28' x 76"
1—Tolhurst 60" Extractor. Rubber Covered Basket
2—Walsh Houston Rotary Sewing Machines
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TERMS:—Cash on mill floor basis.

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500 TRICOT WARP BEAM SPOOLS

Compressed Steel 13¾" x 17¾".
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including Carding Machines, Spinners, Automatic Looms, Slashers, S/S Dyers, Extractors, Calenders, Clip & Pin Tenters, Dry Cans, Multi-color Presses.

Will consider set up plant now operating or shut down. When offering give full particulars.

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1—Textile Hydraulic Starch Mangle
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1—Tolhurst 60" Extractor, M.D. Rebuilt.
1—P & S Yarn Dryer, Metal Housing.
1—National Loop Dryer, Steel Housing.

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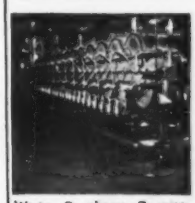

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15—Copper dry cans 25" dia x 100" face steel heads gear driven.
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5—5' slashers 58" face bucket type.
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Specializing in Dry Can Machinery

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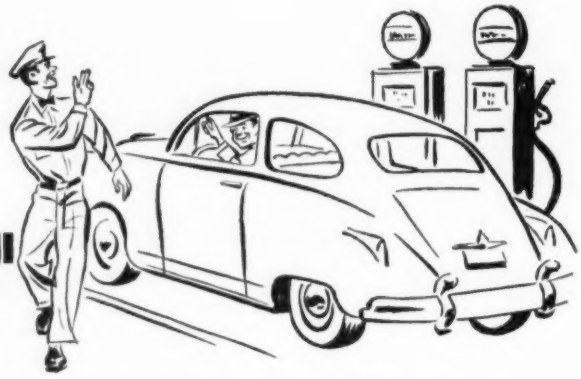
Fall River, Mass.

"SEE YOU AT THE POLLS!"

"SEE YOU AT THE POLLS!"

"SEE YOU AT THE POLLS!"



Nobody knows for sure how it started—this line about "See you at the Polls!" we're hearing all over these days.

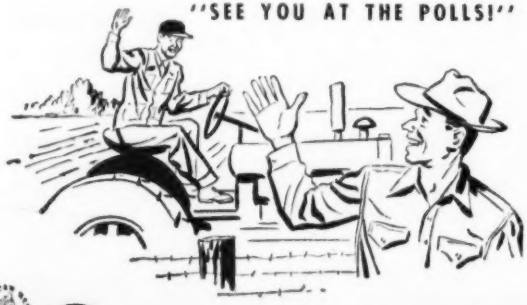
Best explanation seems to be that it came from that state candidate out west. . . . His opponent in a debate got all riled up and challenged him to fight it out in the alley.

But he said—"I'll settle this the AMERICAN way—I'll see you at the polls!" And the audience picked up the chant.

Now everybody's saying it—and on Nov. 4 everybody will be *doing* it!

"SEE YOU AT THE POLLS!"

"SEE YOU AT THE POLLS!"



TEXTILE WORLD

Index to ADVERTISERS Keyed by PRODUCT

A HELP TO YOU. The reader will find that this unique TEXTILE WORLD index, particularly if consulted for two or more consecutive issues, affords a surprisingly complete source of information on the latest products and services available to the textile industry. Its comprehensiveness is the result of the fact that TEXTILE WORLD, having the largest circulation and highest readership of any textile-mill magazine in the world, carries the largest volume of advertising.

HOW TO USE. First, look in the table below and find the letter that designates the class of supply or service that you currently need. Then consult in the index the page numbers that are followed by that letter.

A. Air Conditioning, Air Cleaning
B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply
C. Chemicals and Dyestuffs
D. Cleaning Equipment
E. Dyeing, Finishing, and Cloth-Room Equipment and Supplies
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies
H. Fluid Handling—Compressors, Pumps, Piping, Valves, Fittings
K. Instruments: Measuring, Metering, and Weighing Apparatus
L. Knitting-Mill Equipment and Supplies
M. Lubricants and Lubrication Equipment
N. Management Services—Factors, Consulting Engineers, Insurance, Personnel Facilities, Plant Sites, Etc.
O. Materials for Machinery and Equipment
P. Materials Handling, Packaging, and Shipping Facilities
Q. Power Generation and Transmission (see also Electrical Equipment)
R. Weaving and Warp Preparation Equipment and Supplies
T. Yarn-Production Winding, and Twisting Equipment and Supplies

An * indicates additional data in the 1951-52 Pre-Filed Textile Catalog. This index is published as a convenience to the reader. Great care is taken to make it accurate, but Textile World assumes no responsibility for errors or omissions.

*Abbott Machine Co.	173	T
Acme Knitting Mach. & Needle Co.	239	L
Acme Steel Co.	42	P
Akron Spool & Mfg. Co.	242	R
Aldon Spinning Mills	246	G
Alemite Div., Stewart-Warner Corp.	142	M
Allen-Bradley Co.	3rd Cover	F
Allen Mfg. Co.	229	O
*Allis-Chalmers Mfg. Co.	28-29	F Q
Allis Co., Louis	79	F
American Crayon Co.	236	E I R
American & Efird Mills, Inc.	223	G
*American Lava Corp.	181	I RT
American Lumber & Treating Co.	213	B
American Metal Spinning & Stamping Co.	246	E
American Steel & Wire Co.	10	O
American Viscose Corp. (Yarns)	191	G
American Viscose Corp. (Textile Chem. Div.)	55	C
*Armstrong Cork Co. (Cots)	26-27	T
*Armstrong Cork Co. (Roll Covering)	165	R
Arnold, Hoffman & Co., Inc.	47	C
*Ashworth Bros., Inc.	56	T
*Atkinson, Haserick & Co.	20-21, 22-23	T
Atlantic Rayon Corp.	220	G
*Atlas Electric Devices Co.	237	K
Atlas Powder Co.	55	C
Baldwin-Duckworth Div. of Chain Belt Co.	187	Q
*Barber Colman Co., Textile Div.	241	R
Barnes Textile Associates, Inc.	240	N
Bendix Aviation Corp., Eclipse Machine Div.	46	T
*Bersworth Chemical Co.	264	C
Bijur Lubricating Co.	200	M
Boger & Crawford	33	G

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WARP SIZE

REFLECTS THE INTEGRITY OF THE

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HAS THE QUALITY WHICH MAKES IT

A SOUND BASIC INGREDIENT

FOR

BETTER SIZING

AND

WEAVING

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CLINTON FOODS INC

CLINTON IOWA

how to prevent lead sulphide stains on viscose fiber

... Versene* (REGULAR)

LEAD SULPHIDE SOLUBLE IN VERSENE*

Sulfuric acid, stored in lead, forms lead sulfate which usually deposits on the Viscose fiber as it is coagulated. If this lead is not removed, subsequent desulfurizing precipitates it as the black sulfide. This results in a grey-stained yarn. A Versene rinse can remove the lead at any time — if equipment for a recycled wash is available in the processing line.

VERSENE* MAKES VISCOSE WHITE

Lead compounds, including Lead Sulfide, are soluble in weakly acidic Versene solution. For maximum efficiency, the Versene should be used as a rinse after the acid-coagulating bath and before desulfurizing. The pH of the Versene should be approximately 5.5. Versene cannot be added to the acid-coagulating bath because the lead chelate (complex) of Versene will not be formed in strongly acid solutions. When properly used, Versene assures a *white* yarn.

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Versene (regular) is one of a family of powerful organic complexing agents for the exacting chemical control of cations in solution. Known as ethylene diamine tetra acetic acid sodium salts, it has the ability to form soluble non-ionic chelates with polyvalent metallic ions. It permanently changes the character of these ions in solution. Amazingly stable at all temperatures and pH's, Versene is manufactured to highest specifications. Its uniform quality guarantees uniform results. Write Dept. D. Send for Technical Bulletin No. 2. Ask for sample.

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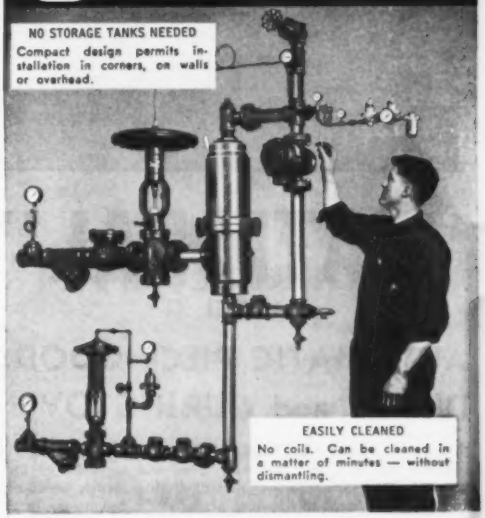
*Booth Co., Benjamin	131	T
*Boston Woven Hose & Rubber Co.	194	T
Bristol Co., The	183	K
Buffalo Pumps, Inc.	206	H
Burlington Engineering Co.	13	F
Burroughs Adding Machine Co.	25	N
*Butterworth & Sons Co., H. W.	130	F
Cabot Inc., Samuel	247	R
*Caldwell Co. W. E.	250	B F
Carrier Corporation	36	A
Celanese Corp. of America, Chemical Div.	219	C
Chemsteel Construction Co., Inc.	248	B
*Chicago Pneumatic Tool Co.	76	H
Ciba Co.	193	C
Cities Service Oil Co.	179	M
Cleaver-Brooks Co.	157	Q
Cleveland Tramrail Div., The Cleveland Crane & Eng. Co.	68	P
Clinton Foods Inc.	263	C
Clipper Belt Lacer Co.	244	Q
*Cocker Machine & Fdry. Co.	58	B
*Cole Mfg. Co., R. D.	216	B F
*Colson Corp.	216	P
Columbia-Geneva Steel Co.	10	O
*Cook-P & N Machine Co., Inc.	140	F
Corn Products Refining Co.	203	C
*Crane Co.	78	H
Crane Mfg. Co.	224	L
*Crompton & Knowles Loom Wks.	48	R
Crucible Steel Co.	61	O
*Curtis & Marble Machine Co.	224	T
Dana Warp Mills	246	G
*Darnell Corp., Ltd.	208	P
*Dary Ring Traveler Co.	225	T
Dayton Rubber Co., The	51	RT
Dexter Chemical Co.	222	C
*Dinsmore Mfg. Co.	239	F
Dolge Co., C. B.	220	B
*Dommerich & Co., L. F.	18	N
Dow Corning Corp.	207	C
*Draper Corporation	1	R
Dronsfield Bros. Ltd.	231	T
Duesberg-Bosson of Amer., Inc.	235	T
*duPont de Nemours & Co., E. I., Dyestuffs Div.	75	C
Plastic Dept.	151	O
*Edda International Corp.	192	R
Elliott Co., Crocker-Wheeler Div.	49	F
Erick-Gross Corp.	202	L
Ericsson Telephone Sales Corp.	195	K
Fafnir Bearing Co.	73	Q
Fairbanks Co., The	204	H
Falls Yarn Mills	224	G
Fielden Instrument Corp.	190	K
Firsching & Son, Inc., J. A.	249	E
*Foster Machine Co.	50	T
Foxboro Co.	74, 234	K
Fuller Brush Co.	186	B
Gardner-Denver Co.	60	H
Gaylord Container Corp.	153	P
General Chemical Div., Allied Chem. & Dye Corp.	41	C
Globe Dye Works	182	G
Goodyear Tire & Rubber Co.	9	Q
Graton & Knight Co.	59	Q
Gulf Oil Corp.—Gulf Refining Co.	24	M
Hardwood Mfg. Co., The	227	R
Hartford Machine Screw Co.	16	T
*Haskell-Dawes Mach. Co., Inc.	228	T
*Heim Co.	188	R
Heineman Corp., O. Div. of Aetna Industrial Corp.	236	G
*Hild Floor Machine Co.	249	D
Hilton-Davis Co.	33	C
Houghton & Co., E. F.	63	C
*Howard Bros. Mfg. Co.	62	T
Hubinger Co., The	214	C
*Hunter Machine Co., Jas.	57	F

*Huyck & Sons, F. C.	240	E
Hyatt Bearings Div., General Motors Corp.	197	Q
Industrial Brush Co.	209	E
*Industrial Heat Eng'g. Co.	226	E
*Ingersoll-Rand Co.	30	H
Ingolstadt	243	T
Iselin & Co., Inc., Wm.	199	N
*Ives Co., L. T.	250	L
*Jenkins Sons Inc., M. W.	178	E
*Jiffy Textile Marker Co.	248	E L R
Johnson, Charles B.	14	R
Keever Starch Co.	169	C
*Kenyon & Son, D. R.	250	E
Kidde & Co., Inc., Walter	167	T
*Kidde Mfg. Co., Inc.	201	L
*Lambeth Rope Corp.	243	RT
*Laurel Soap & Mfg. Co.	212	C
Lazenby & Co., F. A.	220	T
Lewellen Mfg. Co.	84	Q
Linde Air Products Co., a Div. of Union Carbide & Carbon Corp.	196	L RT
*Link-Belt Co.	7	Q
*Loper Co., Ralph E.	248	N
Manhattan Rubber Div.	77	Q
Marshall & Williams Corp.	227	E
*M-B Mfg. Co., Inc.	198	L RT
*Meadows Mfg. Co.	38	Q
Mellor, Bromley & Co., Ltd.	221	L
*Merrow Machine Co.	231	E
Minneapolis-Honeywell Reg. Co., Industrial Div.	66-67	K
Mobilift Corp.	180	P
*Monsanto Chemical Co., Phosphate Div.	136	C
Morris Fur Co.	248	R
*Mt. Hope Machy. Co.	43	E
National Aniline Div., Allied Chem. & Dye Corp.	17	C
*National Drying Machy. Co.	266	E
National Tube Co.	10	O
Nopco Chemical Co.	32	C
Norris Bros.	232	R
Oakite Products, Inc.	238	C
Parks-Cramer Co.	184	A
Penick & Ford Co., Ltd.	251	C
*Perfecting Service Co.	217	H
Pick Mfg. Co.	265	E
Pittsburgh Coke & Chem. Co.	65	C
Platt Bros. (Sales) Ltd.	20-21,	T
Powell Co., Wm.	39	H
Precision Gear & Machine Co.	242	Q
*Prince, Smith & Stells	22-23	T
Raybestos Manhattan, Inc., Manhattan Rubber Div.	77	Q
Reeves Pulley Co.	64	Q
*Reiner Inc., Robert	205	L
Rhoads & Sons, J. E.	5	R
*Richards-Wilcox Mfg. Co.	174	P
Richmond Oil, Soap & Chem. Co.	222	C
*Ridge Tool Co.	177	H
*Robert & Co., Associates	2nd Cover	N
*Rohm & Haas Co.	81	C
Rome Soap Mfg. Co.	250	C
Ryerson & Son Inc., J. T.	132	O
*Saco-Lowell Shops	6	T
*Sargent's Sons Corp., C. G.	223	E
Scherr Co., Inc., Geo.	246	K
Schlafhorst & Co., W.	11	RT
Schweiter Ltd.	34	T
Sisalkraft Co., The	230	P
Snowiss Fur Co.	243	R
Socony-Vacuum Oil Co., Inc.	31	C
Solvay Process Div., Allied Chem. & Dye Corp.	180	C
*Sonoco Products Co.	145	E T

TEMPERATURE CONTROL IS ESSENTIAL *in* BLEACHING and DYEING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No coils. Can be cleaned in a matter of minutes — without dismantling.

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ACCURATE CONTROL + REQUIRED VOLUME

HEATS WATER INSTANTLY

PICK Heaters are entirely automatic to provide and accurately maintain water temperatures up to 180° F. Water is heated **instantly**—by steam injection. Exclusive Pressurizer Piston eliminates pipe hammering and shaking. Installation is simple, requiring only ordinary pipe connections. Available in seven sizes with rated capacities of 10 to 200 gallons per minute.

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AND MANY OTHERS

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WEST BEND, WISCONSIN, U.S.A.

*Standard Chemical Prod., Inc. ..... 69 C
*Standard Fabricators Inc. ..... 211 ..... F
*Standard Pressed Steel Co. ..... 251 ..... O
*Stephens-Adamson Mfg. Co. ..... 80 ..... Q
*Sterling Ring Traveler Co. ..... 214 ..... T
*Stop-Motion Devices Corp. ..... 235 I
Sun Oil Co. ..... 128 C
Superior Combustion Industries, Inc. ..... 247 ..... Q
*Supreme Knitting Mach. Co., Inc. .. 185 I
Swift & Co., Soap Dept. ..... 171 C

Tennessee Coal & Iron R. R. ..... 10 ..... O
Tennessee Corp. ..... 244 C
*Terrell Machine Co., Inc. ..... 72 ..... R
Testworth Laboratories, Inc. ..... 238 C
Textile Banking Co. ..... 138 ..... N
Textile Hall Corp. ..... 218 ..... N
*Textile Machine Wks. ..... 86, 147 L
*Tompkins Bros. Co. ..... 210 L
Torrington Co., The (Needles) .... 53 L
Torrington Co., The (Bearings) .... 54 ..... Q
Turner Transfer ..... 212 ..... N

Union Carbide & Carbon Corp., Linde Air Products Co. ..... 196 ..... I RT
Unionmatex, Textilmaschinen-Union, G.M.B.H. ..... 37 ..... E RT
U. S. Rubber Co., Mechanical Goods Div. ..... 12 ..... T
U. S. Steel Co. ..... 10 ..... O
U. S. Steel Export Co. ..... 10 ..... O
U. S. Steel Supply Co. ..... 10 ..... O
U. S. Stoneware Co. ..... 245 ..... B N
U. S. Testing Co. ..... 222 ..... N
*Universal Winding Co. ..... 8, 158 ..... T

*Veeder-Root, Inc. ..... 4th Cover ..... K
Victor Ring Traveler Co. ..... 52 ..... T

*Warner & Swasey Co. ..... 85 ..... T
Warwick Chemical Co. ..... 2 C
Watson Co., Inc., T. E. ..... 149 ..... R
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Micarta Div. ..... 82-83 ..... O
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Sturtevant Div. ..... 40 ..... A
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*Whitin Machine Works ..... 19, 34 ..... T
*Whitinsville Spinning Ring Co. ... 243 ..... T
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H. E. Hilty, Mgr.

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"NATIONAL"

MODEL G

AUTOMATIC PIECE GOODS DRYER and CURING OVEN

Previous models of "NATIONAL" dryers of this type have successively advanced the efficiency, speed and economy of piece goods drying, with each new design offering greater production and quality rewards to finishing plants and departments. In this latest model, an even higher investment return is assured, through additional improvements in design, construction, operating and control elements.

NEW "INSUL-POLE" CONVEYOR . . . The patented rotating-expanding conveyor poles are made of a special heat-resisting composition. This "INSUL-POLE" was produced by "NATIONAL" to provide greatly increased service life for the conveyor at the higher temperatures required by modern processing developments.

COMPLETELY ENCLOSED ENDS . . . . to assure minimum heat loss, and to prevent escape of noxious fumes in resin curing. HEAVIER CONSTRUCTION . . . including improved and heavier driving mechanism. IMPROVED AIR CONTROLS . . . to accomplish uniform air distribution in the new *wider* machines.

DUPLEX CONVEYORS . . . The new MODEL G Dryers can be furnished with two independently operated and controlled conveyors in the same drying system. This permits two runs, of light and heavy goods, at two different speeds.

HEATING . . . May be steam, steam with gas booster, gas, electric or other mediums.

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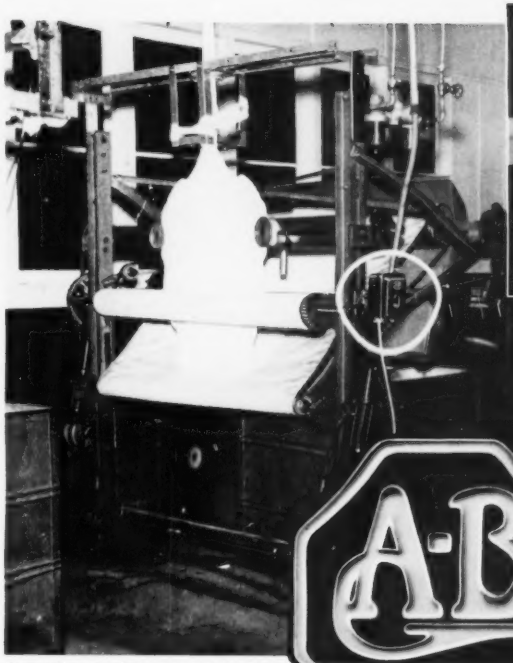
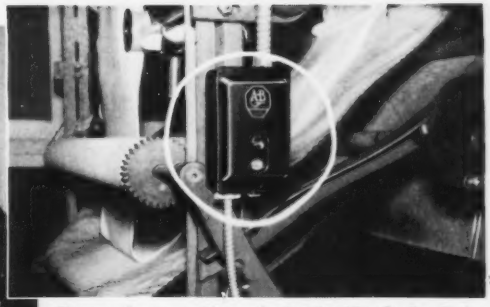


Normalizing machine, installed in Pottsville Bleaching & Dyeing Co., equipped with an A-B Bulletin 609 Manual Starter.



Close-up of same machinery, showing the Allen-Bradley Starter.

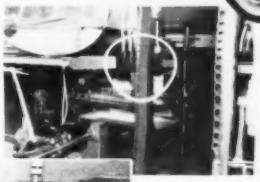
REDMAN PROCESS MACHINES

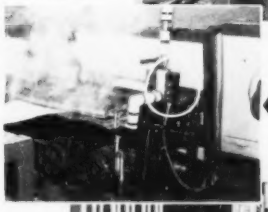
at Pottsville Bleaching and Dyeing Company

equipped with

TROUBLE FREE ALLEN-BRADLEY MOTOR CONTROLS

Laying-up machine, in Redman range at Pottsville Bleaching & Dyeing Co., equipped with three Allen-Bradley push button stations.





Entrance to the Redman finishing unit. Note the Allen-Bradley push button. Allen-Bradley Controls are trouble free.

Note the row of Allen-Bradley Manual and Automatic Starters used to operate the calendering and finishing machine in the Redman range. A-B Starters are good for millions of operations.

Fabric for underwear that won't shrink is now being produced by Redman process machines installed at Pottsville Bleaching and Dyeing Company, Port Carbon, Pennsylvania. These new type textile machines are equipped with Allen-Bradley trouble free motor controls.

Starting requirements of your textile machines determine the type of motor starter needed. But, whether you need slow or quick starting or reversing, across-the-line or reduced voltage starting, manual or automatic starting, the broad line of Allen-Bradley motor controls permits you to select the exact starter for your installation. See nearest Allen-Bradley engineer, today.

Allen-Bradley Co., 120 W. Greenfield Ave., Milwaukee 4, Wis.

TYPICAL ALLEN-BRADLEY CONTROLS FOR THE TEXTILE INDUSTRY

ALLEN-BRADLEY

QUALITY

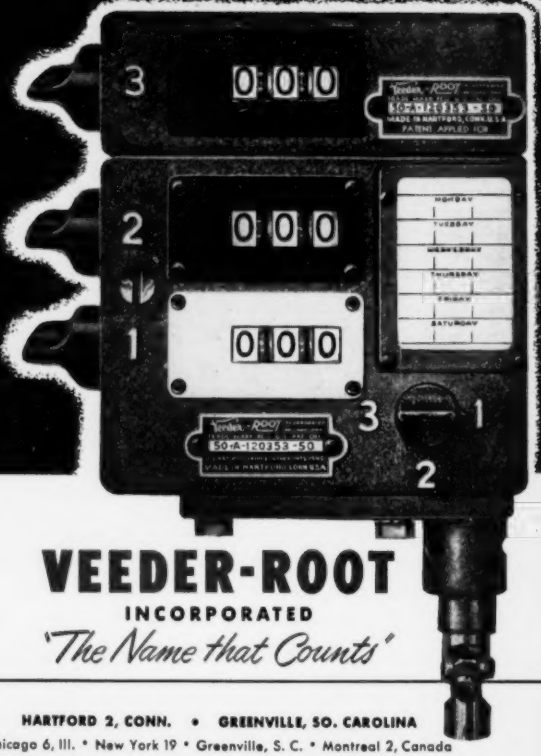
MOTOR CONTROLS FOR TEXTILE MILLS

Keep Loom Production under Complete Countrol

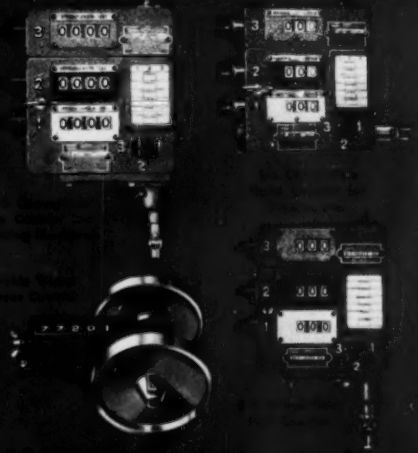
with Cut Meters and Pick Counters

LOOM CUT METERS enable you to get the many desirable advantages of uniform cut-lengths of cloth.

2-3 CONVERTIBLE PICK COUNTERS are the standard of quality and accuracy. And they can be quickly converted from 2 to 3 shifts, right in your mill.



THE COMPLETE LINE OF TEXTILE COUNTING DEVICES



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